THE JOURNAL OF POLITICAL ECONOMY

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THE DEVELOPMENT OF UTILITY THEORY. II

GEORGE J. STIGLER
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C. THE BERNOULLI HYPOTHESIS

THE precise shape of the utility function received little attention in the main tradition of utility theory. Occasionally it was stated that the marginal utility of a necessity falls rapidly as its quantity increases and the like; and there were some mystical references to the infinite utility of subsistence. These were *ad hoc* remarks, however, and were not explicitly developed parts of the formal theory. Only one hypothesis about the marginal utility function ever achieved prominence: it was the Bernoulli hypothesis, which ultimately merged with the Weber-Fechner law, and to this literature we now turn.

In 1713 Nicholas Bernoulli proposed to a French mathematician, Montmort, five problems in probability theory,[113] one of which was equivalent to the following:

> Peter tosses a coin in the air repeatedly until it falls heads up. If this occurs on the first throw, he pays Paul \$1.00; if this occurs first on the second throw, he pays \$2.00; on the third throw, \$4.00; on the fourth throw, \$8.00; and on the nth throw, $\$2.00^{n-1}$. What is the maximum amount Paul should pay for this game?

Montmort replied, perhaps too easily, "Les deux derniers de vos cinq Problêmes n'ont aucune difficulté,"[114] for this was to become known as the St. Petersburg paradox.

Twenty-five years later Daniel Bernoulli introduced the paradox to fame.[115] Its paradoxical nature is easily explained: The probability of a head on the first throw is $\frac{1}{2}$, so the expected winning from the first throw is $\frac{1}{2}$ times \$1.00, or \$0.50. The probability of a first head on the second throw is $\frac{1}{4}$ ($\frac{1}{2}$ of tails on the first throw times $\frac{1}{2}$ of heads on the second), so the expected winning is $\frac{1}{4}$ times \$2.00, or \$0.50. The probability of a first head on the nth throw is $(\frac{1}{2})^n$, so the expected winnings are $(\frac{1}{2})^n$ times $\$2.00^{n-1}$, or \$0.50. Since these probabilities are exclusive, we add them to obtain the expected win-

[113] P. R. de Montmort, *Essay d'analyse sur les jeux de hazard* (2d ed.; Paris: Quillau, 1713), p. 402.

[114] *Ibid.*, p. 407.

[115] In *Specimen theoriae novae de mensura sortis;* references are to the German translation, *Versuch einer neuen Theorie der Wertbestimmung von Glücksfällen* (Leipzig: Duncker & Humblot, 1896).

nings from the game, which are \$0.50 times the infinite possible number of throws. Thus the expected winnings of Paul are infinity—an excessive price for Paul to pay for the game, as even the mathematicians saw.

Bernoulli's solution was to take into account the diminishing marginal utility of money. In the later words of Laplace, he distinguished the mathematical from the moral expectation of a chance event upon which a sum of money depended: the moral expectation was defined as the sum of the products of the various advantages accruing from various sums of money times their respective probabilities.[116] To Bernoulli, "it appears in the highest degree probable" that each equal increment of gain yields an advantage which is inversely proportional to the individual's wealth,[117] i.e.,

$$dU = k\frac{dx}{x},$$

where dU is the increment of utility resulting from an increment dx of wealth and k is a constant. It follows that total utility is a logarithmic function of wealth,

$$U = k \log \frac{x}{c},$$

where c is the amount of wealth necessary for existence.[118]

Bernoulli applied this formula to gambling, obtaining the now traditional result that mathematically fair bets are disadvantageous to both parties because the utility of the sum that may be gained is less than the utility of the sum that may be lost.[119] By a converse application, he calculated the maximum amount one should pay for insurance of specified risks.[120] Finally, he solved the paradox: a person with \$1,000 should pay \$6; etc.[121]

We should notice one further point in this beautiful memoir:

> If [the initial wealth] appears to be infinitely large relative to the greatest possible gain, the arc [of the total utility curve from initial wealth to initial wealth plus the gain] may be considered an infinitely short straight line, and in this case the usual rule [for calculating mathematical expectations] is again applicable. This case is closely approximated in all games in which relatively small sums are at stake.[122]

Thus Bernoulli suggested the assumption of a constant marginal utility of wealth for small variations of wealth.

We cannot follow the immense literature of the paradox in mathematics, but a few views may be noticed.[123] Some

[116] *Ibid.*, p. 27.

[117] *Ibid.*, pp. 27–28. Marshall properly remarked on the difficulties raised by the use of wealth instead of income (*Principles* [8th ed.], p. 842).

[118] On integrating the differential expression, we obtain

$$U = k \log x + \text{constant},$$

and the constant is determined by the condition that, when wealth is at the subsistence level c, $U = 0$.

[119] *Op. cit.*, pp. 39–40.

[120] *Ibid.*, pp. 42–44.

[121] The moral expectation of the individual with initial wealth a is

$$\begin{aligned} U &= \tfrac{1}{2}k \log \frac{a+1}{c} + \tfrac{1}{4}k \log \frac{a+2}{c} \\ &\quad + \tfrac{1}{8}k \log \frac{a+4}{c} + \dots \\ &= k \log \left(\frac{a+1}{c}\right)^{1/2}\left(\frac{a+2}{c}\right)^{1/4} \\ &\quad \times \left(\frac{a+4}{c}\right)^{1/8} \dots \\ &= k \log \frac{v}{c}, \end{aligned}$$

where v is the sum of money whose utility equals the moral expectation. Hence

$$v = (a+1)^{1/2}(a+2)^{1/4}(a+4)^{1/8} \dots$$

and $(v - a)$ is the sum of money whose utility equals the expected gain of utility from playing the game.

[122] *Op. cit.*, p. 33.

[123] For the eighteenth century see I. Todhunter, *A History of the Mathematical Theory of Probability* (London: Macmillan, 1865).

mathematicians—the foremost was Laplace[124]—accepted Bernoulli's solution. Some, like Poisson, solved the problem by taking into account Peter's inability to pay if he had a sufficiently long run of tails, so Paul should pay an amount for the game determined by Peter's fortune.[125] Perhaps the most amusing solution was one by Buffon, which was based on the "lemma" that all probabilities smaller than .0001 are equal to zero (because this was the probability of dying during the day for a man of fifty-six, which was commonly treated as negligible).[126] Cournot, here as in demand theory, refused to look at utility and resorted to the market evaluation of the game.[127]

Perhaps the most surprising characteristic of this literature to the economist is the mathematicians' chief requisite of a solution: that a finite value be found for the value of the game. This is the only merit one can attach to the "limited-fortune" solution of Poisson and others, and even its spurious plausibility depends upon the particular formulation of the problem.[128] Bernoulli was right in seeking the explanation in utility (or alternatively, as Cournot did, in market appraisals), and he was wrong only in making a special assumption with respect to the shape of the utility curve for which there was no evidence and which he submitted to no tests.[129]

In 1860 this line of thought was joined by the independent series of researches that culminated in the Weber-Fechner law. E. H. Weber had proposed the hypothesis: the just noticeable increment to any stimulus is proportional to the stimulus ($R - Reiz$), or

$$\frac{dR}{R} = k .$$

Fechner made this constant of just noticeable differences the unit of sensation (S), to obtain

$$dS = C \frac{dR}{R} ,$$

or, integrating, $S = C \log R/R_0$, where R_0 is the threshold of sensation. Fechner performed a vast number of experiments on weight, temperature, tonal, and other types of discriminations which the formula fitted fairly well, and in the process he devised several methods of measurement (such as the constant method, in which Weber's k is determined by the

[124] *Théorie analytique des probabilités* (3d ed.; Paris: Gauthier-Villars, 1886), pp. xix–xx, chap. x.

[125] S. D. Poisson, *Recherches sur la probabilité des jugements* (Paris: Bachelier, 1837), pp. 74–76. Thus if $F = 2^k$ is Peter's fortune, Paul's expected winnings are

$$\tfrac{1}{2} \cdot 1 + \tfrac{1}{4} \cdot 2 + \ldots + \frac{1}{2^k} \cdot 2^{k-1} + 2^k \times \left(\frac{1}{2^{k+1}} + \frac{1}{2^{k+2}} + \ldots \right) = \frac{k}{2} + 1 .$$

[126] Todhunter, *op. cit.* At the present time the critical probability is .00005.

[127] *Exposition de la théorie des chances* (Paris: L. Hachette, 1843), pp. 108–9, 334. He reformulated the problem: the state (chosen to avoid Poisson's solution) issues tickets: No. 1 pays $1.00 if the first throw is heads; No. 2 pays $2.00 if the first heads comes on the second throw; etc. He argued that no one would buy the high-numbered tickets.

[128] J. Bertrand was surely right in this respect: "If one plays with centimes instead of francs, with grains of sand instead of centimes, with molecules of hydrogen instead of grains of sand, the fear of insolvency may be reduced without limit" (*Calcul des probabilités* [Paris: Gauthier-Villars, 1889], p. 64). Alternatively, one may alter the game, increasing the probability of longer runs and decreasing the rewards correspondingly.

[129] The arbitrariness is illustrated by the fact that the Genevese mathematician, Cramer, had suggested that the utility of income be taken as proportional to the square root of income, in a letter to Nicholas Bernoulli, from which Daniel Bernoulli quotes an extract (*op. cit.*, pp. 55 ff.). It should be noted that, unless the utility of income has an upper bound, it is possible to devise some variant of the St. Petersburg paradox which will have an infinite moral expectation.

proportion of [e.g.] "greater" to total responses in weight comparisons).[130] This was construed—by Fechner also—as proof of Bernoulli's hypothesis, with stimulus identified with income, sensation with pleasure.[131]

We need not follow the detailed evolution of psychologists' treatment of the Fechner law. For decades it was a lively topic of discussion,[132] but for a generation or more it has been declining in importance. Many exceptions have been found to Fechner's formula.[133] The concept of sensation has been severely restricted in meaning, and the form of response of a subject was found to affect his sensitivity.[134] At present Fechner's *Elemente* is important chiefly for the basic methods of measurement he invented and improved.

Many economists in this later period noticed the Bernoulli or Weber-Fechner "laws." The majority simply referred to the hypothesis, favorably or otherwise, and made no real use of the theory. In this group we may list Edgeworth,[135] Pareto,[136] and Wicksell,[137] as well as many lesser figures.[138]

Marshall took the Bernoulli hypothesis much more seriously than did any other leading economist. In 1890 he was prepared to apply it directly to whole income classes:

> If however it should appear that the class affected [by a particular event] in the one case is on the average, say, ten times as rich as in the other, then we shall probably not be far wrong in supposing that the increment of happiness measured by a given sum of money in the one case is, so far at least as its direct results go, about one-tenth as great as in the other.[139]

Whatever the reason, this use of the hypothesis disappeared in the second edition, but lesser evidences of Marshall's affection for the Bernoulli theory persisted.[140]

A group of writers on tax justice, mostly Dutch, made considerable use of the theory in discussions of the ideal rate of income-tax progression.[141] The enthusiasm for the Bernoulli hypothesis di-

[130] *Elemente der Psychophysik* (reprint; 2 vols.; Leipzig: Breitkopf & Härtel, 1889). See also E. G. Boring, *A History of Experimental Psychology* (New York: Appleton-Century, 1929), chap. xiii.

[131] *Psychophysik*, I, 236 ff.

[132] For a summary see E. B. Titchener, *Experimental Psychology* (New York: Macmillan, 1905), II, xiii–clxx.

[133] J. P. Guilford, *Psychometric Methods* (New York: McGraw-Hill Book Co., 1936), chaps. iv and v.

[134] H. M. Johnson, "Did Fechner Measure 'Introspectional' Sensations?" *Psychological Review*, XXXVI (1929), 257–84. Johnson reports a subject whose sensitivity was 18 per cent greater when distinguishing weights by voice than when distinguishing them by pushing the heavier weight toward the experimenter. It would be interesting to know the effect on sensitivity of pushing money.

[135] *Mathematical Psychics*, pp. 7, 62; *Papers*, I, 210; II, 107 ff. Edgeworth flirted with the theory at first but later rejected it as arbitrary and accepted the equally arbitrary view that the marginal utility of income falls faster than the Bernoulli hypothesis suggests.

[136] "Considerazioni . . . ," *Giornale degli economisti*, Series 2, VI (1893), 1–8. Pareto also deemed it arbitrary and pointed out that strictly it pertained to consumption, not to possessions.

[137] "Zur Verteidigung der Grenznutzenlehre," *Zeitschrift für die gesamte Staatswissenschaft*, LVI (1900), 580. Wicksell thought the Weber-Fechner work might eventually permit interpersonal comparisons of utility.

[138] E.g., O. Effertz, *Les Antagonismes économiques* (Paris: Giard & Bière, 1906), pp. 30–32; he encountered the theory first at a beer party where a professor of physiology made a "humorous and detailed application to the consumption of beer" (F. A. Lange, *Die Arbeiterfrage* [5th ed.; Winterthur: Ziegler, 1894], pp. 113 ff., 143 ff.; F. A. Fetter, *Economic Principles* [New York: Century, 1915], pp. 40–41).

[139] *Principles* (1st ed., 1890), pp. 152–53; also p. 180.

[140] *Principles* (8th ed., 1920), pp. 135, 717, 842–43.

[141] For references and summaries see E. Sax, "Die Progressivsteuer," *Zeitschrift für Volkswirtschaft, Sozialpolitik und Verwaltung*, I (1892), 43 ff.

minished when it was discovered that it led to proportional taxation under the equal sacrifice doctrine (each taxpayer to sacrifice an equal amount of utility).[142] Although the doctrine of proportional sacrifice (each taxpayer to sacrifice an equal proportion of his utility) leads to progressive taxation with the Bernoulli utility function,[143] the minimum sacrifice doctrine (which insured progression if the marginal utility of income diminished) soon triumphed.

Two Italian writers used the logarithmic law in quantitative work: Gini, in the analysis of demand;[144] del Vecchio, in the analysis of budgetary data.[145] These studies belong in the history of demand theory, however; and we shall not discuss them here.

Max Weber's famous essay on the Weber-Fechner law is commonly, and perhaps properly, interpreted as a final demonstration that economists can ignore this law. Weber had three main points. First, the law does not hold in all cases ("Tiffany-Vasen, Klosettpapier, Schlackwurst, Klassiker-Ausgaben, Prostituierten . . ."). Second, the law refers to psychical reactions to external stimuli, whereas economics deals with observable behavior in response to subjective needs. Third, economics can get along with the empirical fact that man has limited means to satisfy competing ends and can allocate these means rationally to maximize the fulfilment of the ends.[146] This pungently written essay is hardly conclusive, however, on whether economists should adopt the law. This turns on whether it yields fruitful hypotheses concerning economic behavior. Since it does not,[147] it should not be used.

V. THE MEASURABILITY OF UTILITY

The first careful examination of the measurability of the utility function and its relevance to demand theory was made by Fisher.[148] He solved the measurability

[142] If $U = k \log R$, a tax of T involves a sacrifice of

$$k \log \frac{R}{R-T}.$$

On the equal sacrifice doctrine,

$$k \log \frac{R}{R-T} = \text{constant} = c$$

$$\frac{R}{R-T} = e^{c/k}$$

so

$$\frac{T}{R} = e^{-c/k}\left(e^{c/k} - 1\right) = \text{constant}.$$

[143] Using the notation of the previous footnote, the doctrine requires that

$$\frac{k \log \frac{R}{R-T}}{k \log R} = \text{constant} = m,$$

or

$$\frac{R}{R-T} = R^m,$$

whence

$$\frac{T}{R} = 1 - R^{-m}.$$

[144] "Prezzi e consumi," *Giornale degli economisti*, Series 3, XL (1910), 99–114, 235–49.

[145] "Relazioni fra entrata e consumo," *Giornale degli economisti*, Series 3, XLIV (1912), 111–42, 228–54, 389–439.

[146] "Die Grenznutzlehre und das 'psychophysisches Grundgesetz'" (1908), reprinted in *Gesammelte Aufsätze zur Wissenschaftslehre* (Tübingen: Mohr, 1922). The fundamental argument is in the third paragraph (pp. 361–68).

[147] As applied to commodities, it puts unrealistic limitations on the income elasticities; as applied to income, it implies that there will be no gambling.

[148] Walras had already pointed out that only the ratios of the marginal utilities enter into demand analysis:

"What are v_a, v_b, v_c, . . . [the exchange values]? They are absolutely nothing but the indeterminate and arbitrary terms of which the ratios represent the common, identical ratios of the marginal utilities of all the commodities for all the exchangers in a state of general equilibrium of the market, and of which consequently only the ratios (taking the commodities two at a time)—equal to the ratios of the marginal utilities for every exchanger,—can be measured numerically. Thus value in exchange is essentially relative, being always based upon margin-

problem quite satisfactorily for the case in which the marginal utilities of the various quantities are independent of one another.[149] His procedure was as follows:

Select arbitrarily a quantity of any commodity, say, 100 loaves of bread. Let the marginal utility of this quantity of commodity be the unit of utility (or util). Grant the ability of the individual to order the utilities of specified amounts of two goods, i.e., to indicate a preference (if one exists) or indifference between the two quantities. Then it is possible to construct the utility schedule of (say) milk. Start with no milk, and find the increment of milk (Δm_1) equivalent to the hundredth loaf of bread, i.e., the minimum amount of milk the individual would accept in exchange for the hundredth loaf of bread. Find a second increment (Δm_2), given the possession of Δm_1, equivalent to the hundredth loaf, etc. We obtain thus a schedule (or function) such as that given in Table 1. This function gives the amounts of milk necessary to obtain equal increments of utility; by interpolation we determine the amounts of utility obtained from equal increments of milk (Table 2).

TABLE 1

Symbol	Increment of Milk		
	Quantity (Cubic Inches)	Utility of Increment of Milk	Total Utility of Milk
Δm_1	3	1	1
Δm_2	4	1	2
Δm_3	5	1	3
Δm_4	6	1	4
Δm_5	7	1	5

TABLE 2

Milk (Cubic Inches)	Total Utility of Milk	Marginal Utility of Milk*
3	1.0000	
6	1.7667	.7667
9	2.4333	.6667
12	3.0000	.5667
15	3.4667	.4667

* Per 3 cubic inches.

This initial choice of a unit is arbitrary, but this is not objectionable:

> Any unit in mathematics is valuable only as a divisor for a second quantity and constant only in the sense that the quotient is constant, that is, independent of a third quantity. If we should awaken tomorrow with every line in the universe doubled, we should never detect the change, if indeed such can be called a change, nor would it disturb our sciences or formulae.[150]

Suppose now that the marginal utility of milk depends not only upon the quantity of milk but also upon the quantities of bread and beer—more generally, suppose the generalized utility function of Edgeworth holds. We could proceed as before in finding the quantities of milk, Δm_1, Δm_2, . . . , whose utilities equaled that of the hundredth loaf of bread. Let us now shift to the marginal utility of (say) 60 bottles of beer as our unit and proceed in identical fashion to find $\Delta m_1'$, $\Delta m_2'$, . . . , and thus measure the utility of milk in terms of beer. We shall find the new increments of milk, $\Delta m_1'$, $\Delta m_2'$, . . . , are not proportional to the old,[151] because the marginal utilities of beer and of bread will vary differently as the quantity of milk increases. Hence the total utility

al utility, which alone is absolute" (*Éléments*, pp. 139–40). He dropped the discussion at this point.

An early analysis of utility functions was made by C. [G.?] B. Antonelli, *Sulla teoria matematica della economia politica* (Pisa: Folchetto, 1886); the librarian of Columbia University has not been able to find a copy in the United States.

[149] *Op. cit.*, pp. 11 ff.

[150] *Ibid.*, p. 18.

[151] That is, $\Delta m_1 : \Delta m_2 : \Delta m_3 : \ldots$ will not equal $\Delta m_1' : \Delta m_2' : \Delta m_3' : \ldots$.

curve of milk will take on an entirely new shape, and not merely differ by a proportionality factor, when we change the commodity in terms of which it is measured. Thus we can no longer use this procedure to measure utility.[152]

Fisher concludes his brilliant dissertation with the argument that the total utility function cannot in general be deduced from the indifference curves and that, for purposes of explaining consumers' reactions to prices and income changes, there is no occasion to introduce total utility:

> Thus if we seek only the causation of the *objective facts of prices and commodity distribution* four attributes of utility as a quantity are entirely unessential, (1) that one man's utility can be compared to another's, (2) that for the same individual the marginal utilities at one consumption-combination can be compared with those at another, or at one time with another, (3) even if they could, total utility and gain might not be integratable, (4) even if they were, there would be no need of determining the constants of integration.[153]

Fisher's statement of the difficulty of constructing total utility functions from differential equations of the indifference curves was extremely concise,[154] and we shall elaborate it in connection with Pareto. We may note in passing that thirty-five years later Fisher qualified much of this argument. He was now willing to assume independence of utilities (at least for broad categories such as food and housing) and comparability of utilities of different persons—in order, apparently, to achieve concrete results applicable to income taxation.[155]

[152] Fisher, *op. cit.*, p. 67.

[153] *Ibid.*, p. 89.

[154] *Ibid.*, pp. 74–75, 88–89.

[155] See "A Statistical Method of Measuring 'Marginal Utility' and Testing the Justice of a Progressive Income Tax," in *Economic Essays Contributed in Honor of John Bates Clark* (New York: Macmillan, 1927), pp. 157 ff.

Pareto was the great proponent of doubts on the existence of unique utility functions and of the relevance of such functions to economic behavior. Apparently independently of Fisher, Pareto noticed the problem of the existence of a utility function as early as 1892.[156] Soon thereafter most of his basic mathematical theory was developed.[157] The import of the theory was realized only slowly, however: in the *Cours* (1896 and 1897) he was still willing to accept the interpersonal comparison of utilities for welfare pur-

[156] "Considerazioni . . . ," *Giornale degli economisti*, Series 2, IV (1892), 415. He refers casually to the fact that when the differential equation of the indifference curve is of the form

$$Q(x, y)\,dx + R(x, y)\,dy ,$$

"it may happen that $P[R]$ and Q are not partial derivatives of the same function and then the function will not exist." This was not quite correct: in the two-commodity case there always exists an integrating factor.

[157] "Considerazioni . . . ," *Giornale degli economisti*, Series 2, VII (1893). He introduces the index functions (p. 297), recognizes that it is always possible to integrate the differential equations when the marginal utilities are independent, and presents the integrability condition for the three-commodity case (p. 300). Let the differential equation of the indifference surface be

$$dx_1 + R\,dx_2 + S\,dx_3 = 0 .$$

Then Pareto gives the integrability condition

$$\frac{\partial R}{\partial x_3} = \frac{\partial S}{\partial x_2} .$$

He should have given,

$$\frac{\partial R}{\partial x_3} - \frac{\partial S}{\partial x_2} = S\,\frac{\partial R}{\partial x_1} - R\,\frac{\partial S}{\partial x_1} .$$

He also corrected the statement in the last footnote: "If there are only two economic goods, equation (52) is always integrable" (p. 299 n.). Subsequently he forgot this again (*Manuale di economia politica* [Milan: Piccola Biblioteca Scientifica, 1919—first published in 1906], pp. 499 ff.). He was gently reminded of it by V. Volterra, "L'Economia matematica," *Giornale degli economisti*, Series 2, XXXII (1906), 296–301.

poses.[158] In the *Manuel* (1909), however, measurable utility had fallen into the background—of his theory, if not of his exposition. For Pareto, two questions on measurability were at issue.

The first, and to Pareto the major, problem is this: We can deduce the slopes of indifference curves at (in principle) all possible combinations of goods from budgetary data, because the slopes of the price lines equal the ratios of the marginal utilities (slopes of indifference curves). Thus we obtain empirically the differential equation of the indifference curves. Can we integrate it to obtain the equation of the indifference curves?

Before we look at the mathematics, we may present the problem verbally. Will the choices that an individual makes between combinations of goods differing by infinitesimal amounts be consistent with the choices he makes between combinations differing by finite amounts? For example, the individual starts with the combination $100X_1, 100X_2, 100X_3$. By infinitesimal steps we obtain an infinite number of combinations, each equivalent to the preceding, reaching ultimately the combination $90X_1, 85X_2, 120X_3$. Will the individual consider this last combination equivalent to the first? The intuitive answer usually is: Yes, he is consistent in his preferences. The mathematical answer is equivalent: If the preference system displays a proper continuity, the equation is integrable. If we postulate indifference surfaces, there is no problem: then by hypothesis the infinitesimal comparisons are consistent with discrete comparisons. Economists have usually been willing to admit that the individual can well display this type of consistency. Pareto at times did likewise.[159]

Mathematically, the issue is: Does the line integral of

$$f(x_1, x_2, x_3, \ldots)\,dx_1 + g(x_1, x_2, x_3, \ldots)\,dx_2 + h(x_1, x_2, x_3, \ldots)\,dx_3 + \ldots = 0\,,$$

exist independently of the path between the beginning and end points? Pareto's first two answers are Fisher's: (1) Yes, if f is a function only of x_1, g only of x_2. . . .[160] (2) Yes, if there exists an integrating factor, that is, if the integrability conditions are fulfilled.[161] He adds: (3) If the integrability conditions are not fulfilled, the integral depends on the order of integration, and if this is known the equation can be integrated.[162]

Pareto displayed a peculiar literalness of mind when he tried to translate this third case into economic terms. He identified the order of integration with the order of consumption of the goods.[163] This was absurd for precisely the same reason that dinner-table demonstrations of diminishing marginal utility are objectionable; they do not bear on the problems economics is interested in. Acts of consumption are of little concern; the purpose of the theory of consumption is to explain the pattern of consumption, not its episodes. Economics is usually in-

[158] *Cours d'économie politique* (Lausanne: Rouge, 1897), II, 47–48. The comparisons were limited to types or classes of people to avoid personal idiosyncrasies. The measurability problem was referred to only incidentally (*ibid.*, I, 10 n.).

[159] *Manuel*, pp. 169 n., 264.

[160] *Ibid.*, pp. 545–46, 555; "Économie mathématique," *Encyclopédie des sciences mathématiques* (Paris: Gauthier-Villars, 1911), I, iv, 614.

[161] *Manuel*, pp. 545 ff.; "Économie mathématique," *op. cit.*, pp. 598 ff. The equations are

$$f\left(\frac{\partial h}{\partial x_2} - \frac{\partial g}{\partial x_3}\right) + g\left(\frac{\partial f}{\partial x_3} - \frac{\partial h}{\partial x_1}\right) + h\left(\frac{\partial g}{\partial x_1} - \frac{\partial f}{\partial x_2}\right) = 0\,,$$

and similarly for all triplets of goods.

[162] *Manuel*, pp. 553 ff.

[163] *Ibid.*, pp. 251, 270, 539 ff.

terested only in the time rates of purchase and consumption of goods, and it is not interested in whether the soup precedes the nuts, or whether the consumer drinks three cups of coffee at breakfast or one after each meal, or pours them down the sink. The correct translation of the integrability problem was in terms of the consistency of consumer preferences, not of the temporal sequence of consumption.[164] Pareto indicated elsewhere that economics is interested in repetitive patterns of behavior, and we may view this discussion as a minor aberration.[165]

Given the indifference curves, we come to the second issue: Can we deduce a unique total utility surface? In general, "No." There are in general an infinite number of total utility surfaces whose contours constitute these indifference curves. If we construct one utility surface, we can get another by squaring the amounts of utility, another by taking the logarithm of utility, etc. So far as observable behavior is concerned, one utility surface will do as well as another. We shall return to this, Pareto's basic answer.

He gave also an introspective reply. We can construct a unique total utility function if the consumer can tell us the magnitude of the utility gained by moving from one indifference curve (I_1) to a second (I_2) relative to the utility gained by a move from I_2 to I_3. If he can tell us that the move from I_1 to I_2 gains (say) three times as much utility as the move from I_2 to I_3, then utility is "measurable." That is, if we have one utility surface, we may no longer submit it to transformations such as squaring the amount of utility—then we should have increased the utility of the move from I_1 to I_2 to *nine* times the utility of the move from I_2 to I_3. We can still take the utility function (U) and write it as ($aU + b$), but this merely says that the origin and unit of measurement are arbitrary for utility just as they are for length and other measurements.[166] But Pareto believed the consumer could not rank utility differences.

He did not adhere to these views with consistency. The *Manuel* is strewn with passages that are meaningful only if utility is measurable. Two examples will suffice: First, Pareto's definitions of complementary and competing goods were dependent on the measurability of utility.[167] Second, the marginal utility of income was discussed at length.[168]

Yet much of the foregoing discussion is a digression from the viewpoint of Pareto's mature theory of utility. This digression reflects the heavy hand of the past, and it is justified (rather weakly) chiefly on expository grounds.[169] Fundamentally, Pareto argued that the differential equation of the indifference surface is given by observation and that this is all that is necessary to derive the demand functions:

> The entire theory . . . rests only on a fact of experience, that is to say, on the determination of the quantities of goods which constitute combinations which are equivalent for the individual. The theory of economic science thus acquires the rigor of rational mechanics; it deduces its results from experience, without the intervention of any metaphysical entity.
>
> [Edgeworth] assumes the existence of utility (ophelimity) and from it he deduces the indifference curves; I instead consider as empirically given the curves of indifference, and I deduce

[164] Pareto might equally well have debated how one consumer can consume all goods at once, since the equality of marginal utilities divided by prices is a set of simultaneous equations.

[165] *Manuel*, p. 262.

[166] *Ibid.*, pp. 264–65.

[167] See below, Sec. VI.

[168] *Manuel*, pp. 579 ff.

[169] *Ibid.*, p. 160.

from them all that is necessary for the theory of equilibrium, without having recourse to ophelimity.[170]

Observations on demand consistent with any utility function φ will also be consistent with an arbitrary utility index-function $F(\varphi)$ so long as the order of preference among the combinations is preserved $[F'(\varphi) > 0]$.[171]

Two mathematicians consolidated this position, that all notions of measurable utility could be eliminated from economics. W. E. Johnson demonstrated that the variation of quantity purchased with price and income was independent of the measurability of utility:

> This impossibility of measurement does not affect any economic problem. Neither does economics need to know the marginal (rate of) utility of a commodity. What is needed is a representation of the ratio of one marginal utility to another. In fact, this ratio is precisely represented by the *slope* of any point of the utility-curve [indifference curve].[172]

Johnson thereafter dealt only with ratios of marginal utilities.

Two years later E. E. Slutsky published his magnificent essay on the equilibrium of the consumer.[173] To put economics on a firm basis, "we must make it completely independent of psychological assumptions and philosophical hypotheses."[174] His utility function was accordingly an objective scale of preferences. Slutsky did not deny the interrelations of "economic" utility and "psychological" utility but sought to deduce empirical tests of any psychological hypotheses. If introspection suggests that the marginal utilities of commodities are independent, we can test the hypothesis by the equation it implies.[175] Slutsky assumes that the increment of utility obtained by moving from one combination to another is independent of the path of movement and offers an empirical test of its validity.[176] Conversely, he shows that a full knowledge of demand and expenditure functions is not sufficient in general to determine whether marginal utility diminishes.[177] The beauty and power of the essay are unique.

With Slutsky's development, intro-

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[170] *Ibid.*, pp. 160, 169 n.; see also pp. 539–44.

[171] *Ibid.*, p. 542.

[172] "The Pure Theory of Utility Curves," *Economic Journal*, XXIII (1913), 490. Of course the first sentence is too strong. See M. Friedman and L. J. Savage, "The Utility Analysis of Choices Involving Risk," *Journal of Political Economy*, LVI (1948), 279–304.

[173] "Sulla teoria del bilancio del consumatore," *Giornale degli economisti*, Series 3, LI (1915), 1–26.

E. E. Slutsky was born in 1880 in Novom, Yiaroslavskoi Gubernii, and died in Moscow on March 10, 1948. As a student of mathematics at the University of Kiev in 1901, "because of his participation in an illegal meeting he was drafted as a soldier, and only a large wave of protests by students in the big cities of the country forced the government to return him to the University in the same year. At the beginning of the next year, 1902, E. E. was dismissed from the University without the right to study in any institution of higher education. Only after 1905 was he able to return to the University of Kiev, but this time he entered the law school.

"This choice was dictated by E. E.'s desire to prepare himself for scientific work in the field of mathematical economics, an interest which he had developed from a thorough study of works of Ricardo, Marx, and Lenin. He finished at the law school in 1911, and received a gold medal for his final paper. However, because of his reputation for being 'unreliable' he was not asked to continue his academic career at the University." Thereafter he worked intensively in probability and mathematical statistics, teaching at the Institute of Commerce at Kiev from 1912 to 1926, when he went to Moscow "to work in a number of scientific research institutions of the capital."

This information is from N. Smirnov's obituary notice, *Izvestiya Akademiia Nauk SSSR* ("Mathematical Series"), XII (1948), 417–20, a translation of which was kindly made for me by Dr. Avram Kisselgoff.

[174] *Op. cit.*, p. 1.

[175] *Ibid.*, p. 25.

[176] *Ibid.*, pp. 3, 15–16. That is, the integrability condition is fulfilled.

[177] *Ibid.*, pp. 19–23.

spection no longer plays a significant role in utility theory. There is postulated a function which the consumer seeks to maximize, and the function is given the characteristics necessary to permit a maximum. This is perhaps subjective in origin: the notion of maximizing behavior was probably derived from introspection, although it need not be. Slutsky posits such a function merely because it contains implications that observation can contradict, and hence yields hypotheses on observable behavior. We shall return later to the question whether this is an efficient method of obtaining hypotheses.

We have been marching with the vanguard; we retrace our steps now and examine the views of the other leading economists of the period on measurability.

CONTEMPORARY PRACTICE

None of the other leading economists of this period rejected the measurability of utility; we may cite Wicksteed,[178] Wicksell,[179] Barone,[180] Edgeworth,[181] and Pigou.[182] It is true that by the end of the period the leading economists were realizing that measurability of utility was not essential to the derivation of demand curves, but they were loath to abandon the assumption. In part this reluctance was based on the desire to employ utility theory in welfare analysis; in part it was psychological theorizing. Yet with the passage of time, caution increased, as Marshall's evolution will illustrate.

Marshall was at first unqualified in his acceptance of the measurability of utility:

> Thus then the desirability or utility of a thing to a person is commonly measured by the money price that he will pay for it. If at any time he is willing to pay a shilling, but no more, to obtain one gratification; and sixpence, but no more, to obtain another; then the utility of the first to him is measured by a shilling, that of the second by sixpence; and the utility of the first is exactly double that of the second.
>
> The only measurement with which science can directly deal is that afforded by what a person is willing to sacrifice (whether money, or some other commodity, or his own labour) in order to obtain the aggregate of pleasures anticipated from the possession of the thing itself.[183]

Moreover, he fully accepted the intergroup comparisons of utility:

> Nevertheless, if we take averages sufficiently broad to cause the personal peculiarities of individuals to counterbalance one another, the money which people of equal incomes will give to obtain a pleasure or avoid a pain is an *extremely accurate* measure of the pleasure or the pain.[184]

Indeed, as we have already noticed, he believed that one can even compare the utilities of groups with different incomes, by using Bernoulli's hypothesis.

We need not trace in detail the growth of Marshall's caution and reticence in this area. He became unwilling to attribute precision to interpersonal comparisons.[185] The discussion of consumer surplus becomes increasingly defensive.

[178] *Common Sense of Political Economy*, I, 148 ff.; II, 470, 473, 601.

[179] *Lectures*, I, 29 ff., 221; he apparently did not fully understand the Pareto analysis (see his review of the *Manuel*, *Zeitschrift für Volkswirtschaft, Sozialpolitik, und Verwaltung*, XXII [1913], 136 ff.).

[180] *Principi di economia politica* (Rome: Bertero, 1908), pp. 12–13, 22–24.

[181] *Papers*, II, 473 n., 475.

[182] *Wealth and Welfare* (London: Macmillan, 1912), *passim*.

[183] *Principles* (1st ed.), pp. 151, 154 n.

[184] *Ibid.*, p. 152. (My italics.) See also *ibid.*, p. 179.

[185] The Bernoulli hypothesis is no longer applied to social classes. The "extremely accurate" comparison of groups with equal incomes becomes "there is not in general any very great difference between the amounts of the happiness in the two cases [two events with equal money measures]" (*Principles* [8th ed.], p. 131).

Probably because of the growing criticism of hedonism, many terminological changes are made: "benefit" for "pleasure"; "satisfaction" for "utility"; etc. Bentham's dimensions of pleasure were approved at first;[186] they lose their sponsor and place in the text.[187] The distinction between desires and realized satisfactions becomes prominent.[188] Yet Marshall seems never to have been seriously skeptical of the measurability of utility, and the changes in his exposition were not accompanied by any change in the fundamentals of his theory.

VI. COMPLEMENTARITY

Jevons had noticed the case of "equivalent" (substitute) commodities and implicitly defined them by the constancy of the ratio of their marginal utilities.[189] In this he was inconsistent, for he treated the marginal utility of X_1 as dependent only on the quantity of X_1 in his general theory, whereas if X_1 and X_2 are "equivalent," the marginal utility of X_1 depends also on the quantity of X_2. One cannot define the usual relationships among the utilities of commodities with an additive utility function, so the utility theory of complementarity had to wait for Edgeworth's generalization of the utility function. In fact, it had to wait a little longer, for Edgeworth glossed over this problem in the *Mathematical Psychics*.

The first formal definition of the relationship between utilities of commodities was given by the remarkable Viennese bankers, Auspitz and Lieben:

> The mixed differential quotient,
>
> $$\frac{\partial^2 \phi}{\partial x_a \partial x_b},$$
>
> indicates what influence (if any) an algebraic increase in x_b—a larger purchase or a smaller sale of B—has on the utility of the last unit of A purchased or not sold. If we consider the simplest case, in which only A and B are consumed,
>
> $$\frac{\partial^2 \phi}{\partial x_a \partial x_b} \gtreqless 0,$$
>
> according as B complements the satisfaction derived from A, has no influence on it, or competes with A.[190]

Fisher repeated this definition and illustrated certain limiting cases by indifference curves. He defined two commodities to be perfect substitutes if the ratio of the marginal utilities of the amounts "actually consumed" was absolutely constant; they were perfect complements if the quantities consumed were in a constant ratio.[191] Edgeworth gave the same criterion in 1897.[192]

Let us illustrate the use of this criterion with a numerical example. We may construct a table of total utilities as a function of the quantities of X_1 and X_2 and from it calculate the marginal utilities of X_1 (Table 3). Our example has

TABLE 3

Quantity of X_2	Total Utility Quantity of X_1		Marginal Utility of X_1
	1	2	
1	3.0	5.4	2.4
2	5.4	9.0	3.6

[186] *Principles* (1st ed.), p. 153.

[187] *Principles* (8th ed.), p. 122 n.

[188] *Ibid.*, p. 92.

[189] *Theory of Political Economy*, p. 134.

[190] *Untersuchungen uber die Theorie des Preises* (Leipzig: Duncker & Humblot, 1889), p. 482; see also pp. 154 ff., 170 ff.

[191] *Mathematical Investigation*, pp. 65–66, 69, 70–71. The definitions of these limiting cases are independent of the existence of a unique utility function.

[192] He was so punctilious in acknowledging predecessors that his tone suggests independence of discovery. See "The Pure Theory of Monopoly," reprinted in *Papers*, I, 117 n. His criterion differed in one detail—ϕ was the utility function in terms of money and hence involved the marginal utility of money (the complicating effects of which were not discussed). This was not inadvertent; he desired symmetry with the definition of complementarity of products in production (*ibid.*, I, 127; II, 123). The Auspitz and Lieben definition was given later (*ibid.*, II, 464).

been so chosen that the marginal utility of a given quantity of X_2 increases when the quantity of X_2 increases, hence X_1 and X_2 are complements.

Now let us construct a new table, in which total utility is equal to the logarithm of the total utility in Table 3. This is the kind of transformation we may make if utility is not measurable; it does not preserve the relative differences between utilities, but it preserves their order. We now find (Table 4) that by the

TABLE 4

Quantity of X_2	Total Utility Quantity of X_1 1	2	Marginal Utility of X_1
1	.4771	.7324	.2553
2	.7324	.9542	.2218

same criterion, X_1 and X_2 are substitutes. We have shown that the criterion is ambiguous if utility is not uniquely measurable.[193]

Perhaps Fisher was so casual on this point because he saw the dependence of the definition on the measurability of utility, and Edgeworth was unconcerned because he believed utility was measurable. But Pareto was inconsistent; he made extensive use of this definition at the same time that he was rejecting the measurability of utility.[194]

Marshall displayed greater inconsistency than Pareto, for he implicitly followed the Auspitz-Lieben definition even though he employed an additive utility function which did not permit of complementarity. Thus he speaks of "rival commodities, that is, of commodities which can be used as substitutes for it."[195] In the third edition this definition in terms of utility becomes reasonably explicit.[196] I suspect that Marshall was led into the inconsistency by his preoccupation with the role of rival and completing goods in production. That Pareto and Marshall adhered to the criterion is weighty testimony for its intuitive appeal.

W. E. Johnson supplied a definition of complementarity in terms of utility that was independent of the measurability of utility.[197] His criterion turned on the behavior of the slope of the indifference curve when one quantity was increased. That is to say, X_1 and X_2 are complements if the more of X_1 the individual possesses, the larger the increment of X_1 he will give up to obtain a unit of X_2.[198] For the fairly broad classes of commodities usually dealt with in budget studies, all commodities are probably complements on the Johnson definition. Slutsky

[193] Equivalently, let φ be a utility function, $F[\varphi]$ a transformation of it such that $F' > 0$. Then

$$U = F[\varphi(x_1, x_2)]$$

$$U_1 = F'\varphi_1$$

$$U_{12} = F'\varphi_{12} + F''\varphi_1\varphi_2$$

so F'' must be zero—the transformation must be linear—if the sense of the definition is to be preserved.

[194] *Manuel*, chap. iv, pp. 576 ff.

[195] *Principles* (1st ed.), p. 160; see also pp. 438 and 178 n., with its accompanying Mathematical Note VI referring to "several commodities which will satisfy the same imperative want. . . ."

[196] "The loss that people would suffer from being deprived both of tea and coffee would be greater than the sum of their losses from being deprived of either alone: and therefore the total utility of tea and coffee is greater than the sum of the total utility of tea calculated on the supposition that people can have recourse to coffee, and that of coffee calculated on a like supposition as to tea" (*loc. cit.*, p. 207 n. [131–32 n.]).

[197] *Op. cit.*, p. 495. See also Henry Schultz, *The Theory and Measurement of Demand* (Chicago: University of Chicago Press, 1938), pp. 608–14.

[198] The commodities are complements if both of the following inequalities hold:

$$\frac{\partial\left(\frac{\varphi_1}{\varphi_2}\right)}{\partial x_1} < 0, \qquad \frac{\partial\left(-\frac{\varphi_1}{\varphi_2}\right)}{\partial x_2} < 0.$$

They are substitutes if one of the inequalities is reversed; the stability condition (convex indifference curves) inhibits the reversal of both inequalities.

offered no definition of complementarity.[199]

It is difficult to see the purpose in Johnson's definition of complements, or, for that matter, in more recent versions such as that of Hicks and Allen. They cannot be applied introspectively to classify commodities (as the Auspitz-Lieben definition could be), so they offer no avenue to the utilization of introspection. Hence no assumption concerning their magnitude or frequency is introduced into the utility function—except for the condition that their frequency and magnitude be consistent with the assumption of stability.[200] As a result, such criteria can be applied concretely only if one has full knowledge of the demand functions. If one has this knowledge, they offer no important advantage over simple criteria such as the cross-elasticity of demand; if one does not have this knowledge, the simple criteria are still often applicable. The chief reason for presenting criteria in terms of utility, I suspect, is that, when familiar names are given to unknown possibilities, an illusion of definiteness of results is frequently conferred.

VII. THE DERIVATION OF DEMAND FUNCTIONS

Walras' derivation of the demand curves from utility functions was complete and correct for the generalized utility function of Edgeworth as well as for the additive utility function. But Walras passed from utility to demand intuitively and failed to demonstrate that any limitations on demand curves followed from the assumption of diminishing marginal utility.

Pareto was the first to make this logical extension of utility theory. Working with the simple additive utility function, he showed in 1892 that diminishing marginal utility rigorously implies that the demand curves have negative slopes.[201] A year later he partially solved the problem when the marginal utilities of the commodities are interdependent.[202] He could no longer deduce any meaningful limitation on the slope of the demand curve, and dropped the analysis. In the *Cours* he went further and argued that the demand curve for wheat may have a positive slope.[203]

A corresponding derivation of the effect of a change in income on the consumption of a commodity was presented in the *Manuel*, but Pareto gave no explicit mathematical proof and the analysis has generally been overlooked:

> If we assume that the ophelimity of a commodity depends only on the quantity of that commodity that the individual consumes or has at his disposal, the theoretical conclusion is that, for such commodities, consumption increases when income increases; or, at the limit, that the consumption is constant when income exceeds a certain level. Consequently, if a peasant subsists only on corn, and if he becomes rich, he will eat more corn, or at least as much as when he was poor. He who has only one pair of sabots

[199] His compensated variation of price is intimately related to the later definition of Hicks and Allen.

[200] Thus, in the two-commodity case, both commodities cannot be substitutes on Johnson's definition; however, neither need be.

[201] "Considerazioni . . . ," *Giornale degli economisti*, Series 2, V (1892), 119 ff. His demonstration is equivalent to ours (above, Sec. III). He also suggested the analysis of the problem of the simultaneous variation of all prices—which can be made equivalent to an income variation—but did not solve the problem explicitly (*ibid.*, p. 125). As we have noticed (Sec. IV), under the less stringent assumption of a convex utility function, one commodity can have a positively sloping demand curve.

[202] "Considerazioni . . . ," *Giornale degli economisti*, Series 2, VII (1893), 304–6. This is equivalent to our illustration (Sec. IV).

[203] *Cours*, II, 338. The discussion was hypothetical, employing the same argument that Marshall used for the Giffen case.

a year because they are too expensive, may when he becomes rich use a hundred pairs, but he will always use one pair. All this is in manifest contradiction to the facts: our hypothesis must therefore be rejected. . . .[204]

Despite this admirable test of the hypothesis of independent utilities, Pareto continued to find some use for the additive utility function.

Pareto also made a number of minor applications of utility theory to demand analysis. He showed that the demand and supply curves cannot be linear when there are three or more commodities and that the demand curve of a commodity cannot have constant elasticity when there are three or more commodities. Both demonstrations rested on the independence of the marginal utilities of the commodities.[205] We shall notice later his analysis of the constancy of the marginal utility of money.

Fisher had shown graphically in 1892 that if the utility function is not additive, an increase in income may lead to decreased consumption of a commodity.[206] The compatibility of negatively sloping income curves with convex indifference curves was first shown mathematically by W. E. Johnson.[207] Johnson also demonstrated that a rise in price may lead to an increase in the quantity of the commodity purchased.[208] Moreover, Johnson was first to carry through the explicit analysis of utility with the use only of the ratios of marginal utilities. His exposition was concise and peculiar, however, and was slow to receive attention.[209]

The complete and explicit analysis of the general case was given in lucid form by Slutsky.[210] We may illustrate his general logic with a numerical example. Let the individual consumer buy

100 units of X_1 at \$1.00, a cost of \$100,
60 units of X_2 at \$0.75, a cost of \$ 45,

exactly equaling his income of \$145. Let now the price of X_1 rise to \$1.10. Then the apparent deficiency of income, in Slutsky's language, is 100 times \$0.10 = \$10, for this is the amount that must be added to the individual's income to permit him to purchase the former quantities. If, simultaneously with the rise in the price of X_1, we give the individual \$10, Slutsky calls it a compensated variation of price. Although the individual experiencing a compensated rise in the price of X_1 can still buy the same quantities, he will always substitute X_2 for X_1, because X_2 is now relatively cheaper: Slutsky demonstrated that this is a consequence of the convexity of the indifference curves.[211] The individual will move to perhaps

86.36 units of X_1 at \$1.10, a cost of \$95,
80.00 units of X_2 at \$0.75, a cost of \$60.

[204] *Manuel*, pp. 273–74.

[205] "Économie mathématique," *Encyclopédie*, I, iv, 616 ff.

[206] *Mathematical Investigations*, pp. 73–74.

[207] *Op. cit.*, p. 505.

[208] *Ibid.*, p. 504.

[209] A good discussion was given by Edgeworth, *Papers*, II, 451 ff.

[210] It is summarized by Schultz, *op. cit.*, chap. i, xix; R. G. D. Allen, "Professor Slutsky's Theory of Consumers' Choice," *Review of Economic Studies*, February, 1936. Slutsky takes the equation,

$$d^2\varphi = \varphi_{11}dx_1^2 + \varphi_{22}dx_2^2 + \ldots + 2\varphi_{12}dx_1dx_2 + \ldots$$

and by a linear transformation puts it in the canonical form,

$$d^2\varphi = A_1da^2 + A_2db^2 + A_3dc^2 + \ldots .$$

He carries through two analyses, one for all $A_i < 0$, called the normal case, and a second for one $A_i > 0$, called the abnormal case. If two or more A_i are positive, $d^2\varphi$ will not be negative along the budget constraint (*op. cit.*, pp. 4–5).

[211] More precisely, he demonstrated that it is a consequence of the stability of the maximum the consumer has achieved (Slutsky, *op. cit.*, p. 14, Eq. 52).

The changes in quantities

$$86.36 - 100 = -13.64 \text{ units of } X_1,$$
$$80.00 - 60 = 20.00 \text{ units of } X_2,$$

were called the residual variabilities. If now we withdraw the \$10 of income used to compensate for the variation in price, the individual may move to, say,

80 units of X_1 at \$1.10, a cost of \$88,
76 units of X_2 at \$0.75, a cost of \$57.

In our example the individual reduces the quantities of both goods when income falls; Slutsky calls such goods relatively indispensable. Had X_1 been relatively dispensable, the decline in income of \$10 would have led to a rise in the quantity purchased, conceivably sufficient to offset the residual variation. We have thus the laws of demand:

1. The demand for a relatively indispensable good is necessarily normal, that is to say, it diminishes when its price increases and rises when the price diminishes.
2. The demand for a relatively dispensable good may in certain cases be abnormal, that is to say, it increases with the increase of price and diminishes with its decrease.[212]

In addition, he deduced the integrability equations connecting the effects of the price of X_1 on X_2 and the price of X_2 on X_1:

$$\frac{\partial x_1}{\partial p_2} + x_2 \frac{\partial x_1}{\partial R} = \frac{\partial x_2}{\partial p_1} + x_1 \frac{\partial x_2}{\partial R}.$$ [213]

And so we have fulfilled the historian's wish: the best has come last.

MARSHALL

Marshall constructed a demand curve superior to Walras' for empirical use but related it to utility by an exposition less than masterly. This demand curve was of the form

$$x_i = f(p_i, R, I),$$

where I is an index number of all prices. Marshall assumed, of course, that tastes are fixed.[214] The constancy of the "purchasing power of money" (the reciprocal of our I) is an assumption governing the entire *Principles*, and it is specifically reaffirmed in the discussion of demand.[215] The role of money income is clearly recognized.[216]

I interpret I in Marshall's equation as an index number representing the average price of all commodities excluding X_i. Then his demand curve differs from the Walrasian demand curve in that he holds constant the average of other prices rather than each individual price. Changes in I may be measured by an index number embracing all commodities (including X_i), as in effect Marshall proposes, but only at the cost of inconsistency: when all prices except p_i are constant, I will vary with p_i. Unless the expenditure on X_i is large relative to income, and unless its price varies greatly, however, the quantitative error will be small.[217] We could eliminate this inconsistency (and certain ambiguities too) in Marshall's treatment by interpreting I as the average of all prices, so real income is held constant along the demand

[212] *Ibid.*, p. 14.

[213] *Ibid.*, p. 15.

[214] *Principles* (1st ed.), p. 155 [94]: "If we take a man as he is, without allowing time for any change in his character. . . ."

[215] "Throughout the earlier stages of our work it will be best . . . to assume that there is no change in the general purchasing power of money" (*ibid.*, p. 9 [62]).

[216] In addition to a reference discussed below (*ibid.*, p. 155 [95]), we may cite Book III, chap. iii [iv], with its discussion of rich and poor buyers and the "disturbing cause." "Next come the changes in the general prosperity and in the total purchasing power at the disposal of the community at large" (*ibid.*, p. 170 [109]).

[217] It is sufficient, Marshall says, to "ascertain with tolerable accuracy the broader changes in the purchasing power of money" (*ibid.*, p. 170 [109]); elsewhere he proposes to do this with an index number of wholesale prices (*Memorials*, pp. 207–10).

curve.[218] But then we should encounter new inconsistencies.[219]

Marshall insists that the prices of rival goods be held constant.[220] This proviso is troublesome to reconcile with his utility theory but not to explain. The reconciliation is troublesome because rival goods are defined in terms of utility and cannot exist with an additive utility function.[221] (We can of course eliminate this difficulty by generalizing the utility function or shifting to a definition of rival products in terms of demand cross-elasticities.) The purpose of the proviso is obvious, however; when p_i rises, consumers will shift to close rivals, and their prices will tend to rise even if the price level is stable, so the effect of changes only in p_i on purchases of X_i will be obscured.[222]

This Marshallian demand curve can be derived by the conventional Walrasian technique simply by grouping together all commodities except the one under consideration and identifying their price with the price level.[223] But then what is the role of that famous assumption, the constancy of the marginal utility of money (income)? The answer is that this additional assumption is quite indispensable to his textual instruction on how "to translate this Law of Diminishing Utility into terms of price."[224] Marshall moves directly and immediately from marginal utility to demand price by the (implicit) equation,

$$MU_i = \text{constant} \times p_i,$$

and adds, "so far we have taken no account of changes in the marginal utility to [the buyer] of money, or general purchasing power."[225] The assumption of constancy of the marginal utility of money is essential to his exposition of the relationship between utility and demand curves, and essential also to the substance of the apparatus of consumers' surplus. But it is not essential to the Marshallian demand curve if expositional simplicity is sacrificed.

Precisely what does Marshall mean by the constancy of the marginal utility of income? He tells us (in Book V!):

> There is a latent assumption which is in accordance with the actual conditions of most markets; but which ought to be distinctly recognized in order to prevent its creeping into those cases in which it is not justifiable. We tacitly assumed that the sum which purchasers were willing to pay, and which sellers were willing to take for the seven hundredth bushel would not be affected by the question whether the earlier bargains had been made at a high or a low rate. We allowed for the diminution in the marginal utility of corn to the buyers as the amount bought increased. But we did not allow for any appreciable change in the marginal utility of money; we assumed that it would be practically

[218] See M. Friedman, "The Marshallian Demand Curve," *Journal of Political Economy*, LVII (1949), 463–95.

[219] Examples are the Giffen paradox and the statement that, in cases of multiple equilibria, consumers prefer to buy the quantity at the largest intersection of the supply and demand curves (*Principles* [1st ed.], p. 451 n. [472 n.]).

[220] "One condition which it is especially important to watch is the price of rival commodities . . ." (*ibid.*, p. 160 [100]). Complements' prices were added in the second edition (*loc. cit.*, p. 158 [100 n.]).

[221] See Sec. VII.

[222] Marshall also assumes in effect that the anticipated future price equals the present price (*Principles* [1st ed.], p. 161).

[223] No explicit derivation was given along these lines, but one can be read into Mathematical Note III [II].

[224] The phrase, but not the thought, dates from the second edition (*loc. cit.*, p. 151 [94]).

[225] *Principles* (1st ed.), p. 155 [95]. In the first edition this was the only explicit statement of the assumption in the book on demand; but see also Mathematical Note VI with its cross-reference to pp. 392–93 [334–35]. After the quoted sentence, Marshall discusses the effect of income on the marginal utility of money but is eloquently silent on the effect of price changes.

the same whether the early payments had been at a high or a low rate.

This assumption is justifiable with regard to most of the market dealings with which we are practically concerned. When a person buys anything for his own consumption, he generally spends on it a small part of his total resources; while when he buys it for the purposes of trade, he looks to re-selling it, and therefore his potential resources are not diminished. In either case the marginal utility of money to him is not appreciably changed. But though this is the case as a rule, there are exceptions to the rule.[226]

It seems beyond doubt that Marshall treated the marginal utility of money as approximately, and not rigorously, constant, and fairly clear that it is constant with respect to variations in the price of a commodity whose total cost is not too large a part of the budget.

The large volume of writing on Marshall's assumption adds an ironical overtone to our phrase "expositional simplicity." Some of the studies have been concerned with the implications of strict constancy.[227] Pareto and Barone gave such interpretations in our period.[228] The approximate constancy of the marginal utility of income has also been discussed.[229] Pareto skirted such an interpretation;[230] it can be elaborated to show that approximate constancy has no implications beyond those already implicit in the additive utility function.[231] The assumption looms large in economic literature but marks a fruitless digression from the viewpoint of the progress of utility theory.

THE ABANDONMENT OF UTILITY

Demand functions, as we have already noticed, had been treated as empirical data in the classical economics and in the work of economists such as Cournot.[232] Gustav Cassel was the first of the modern theorists to return to this approach. His theory was developed in 1899 and never changed thereafter in essentials.[233] He attacked the utility theory along two lines.

His first and constructive thesis was that one can employ demand functions directly, without a utility substructure:

> The individual has a value scale in terms of money, with which he can not only classify his needs but also express numerically their intensities. . . . If I adopt the fiction that the needs of individuals A and B are of the same intensity, if both value a given need at one mark, then I have extracted from the psychological assump-

[226] *Ibid.*, pp. 392–93 [334–35]; see also [p. 132]

[227] See M. Friedman, "Professor Pigou's Method for Measuring Elasticities of Demand from Budgetary Data," *Quarterly Journal of Economics*, L (1935), 151–63; P. A. Samuelson, "Constancy of the Marginal Utility of Income," in Oscar Lange *et al.* (eds.), *Studies in Mathematical Economics and Econometrics* (Chicago: University of Chicago Press, 1942), pp. 75–91.

[228] In 1892 Pareto argued that the assumption implied that each demand curve has unitary elasticity; "Considerazioni . . . ," *Giornale degli economisti*, Series 2, IV (1892), 493. In 1894 Barone made a more elaborate analysis and reached a similar conclusion; *Le Opere*, I, 48. A few months later he offered a second interpretation: when p_i varies, money income varies by an amount equal to the change in expenditure on X_i (*ibid.*, pp. 59 ff.).

[229] N. Georgescu-Roegen, "Marginal Utility of Money and Elasticities of Demand," *Quarterly Journal of Economics*, L (1936), 533–39.

[230] *Manuel*, pp. 582 ff.; "Économie mathématique," *op. cit.*, p. 631.

[231] Let X_1 be the commodity, X_2 all other commodities. I interpret Marshall to mean that the rate of change of the marginal utility of X_2 is small relative to the rate of change of the marginal utility of X_1, or—introducing prices to eliminate the units in which commodities are measured—that

$$\frac{\varphi_{22}p_1^2}{\varphi_{11}p_2^2}$$

is approximately zero.

[232] A. A. Cournot, *Mathematical Principles of the Theory of Wealth* (New York: Macmillan, 1929), esp. chap. iv.

[233] "Grundriss einer elementaren Preislehre," *Zeitschrift für die gesamte Staatswissenschaft*, LV (1899), 395 ff.; cf. *The Theory of Social Economy* (New York: Harcourt, Brace, 1932), esp. pp. 80 ff., where the tone is much more gentle and conciliatory.

tions everything that is relevant to the economic side of the matter.[234]

The subjective element which we seek to isolate is the relationship between valuation and external factors [income and prices]. In order to discover this relationship, we must allow the external factors to vary; then the value the individual attributes to the good in question will also vary. This value is therefore a function of the external factors, and in this functional relationship we have the complete and pure expression of the subjective element, that is, of the nature of the individual so far as it affects the formation of prices.[235]

But Cassel made no studies of the properties of the demand functions.

No doubt it was psychologically inevitable that Cassel had also a second thesis: that the utility theory was full of error. This theory, he charged, required a unit of utility that no one could define;[236] it required unrealistic divisibility of commodities and continuity of utility functions;[237] it required, or at least always led to, meaningless interpersonal comparisons of utility;[238] the assumption of constancy of the marginal utility of money is meaningless or objectionable;[239] etc.

Wicksell quickly replied for the utility theorists and with sufficient vigor to estrange Cassel for life.[240] He properly pointed out the weaknesses in Cassel's criticisms of the marginal utility theory: that it did not require measurability of utility or interpersonal comparisons except for welfare analyses; that Cassel's discontinuity objections were unrealistic and in any event did not affect the substance of the theory; etc. Wicksell also properly pointed out the considerable use of utility language in Cassel's positive theory and his implicit use of utility to reach welfare conclusions. And, finally, Wicksell criticized Cassel for his rough treatment of predecessors on the rare occasion when he recognized them at all—a charge that was exaggerated but not unfounded.[241]

But Wicksell did not meet the substantive claim of Cassel that it was possible to start directly with demand functions and that the utility theory added no information on the nature of these functions. He seemed content at this point merely to argue that the utility theory incorporated reliable psychological information into economics.[242]

Barone employed the same empirical approach to demand in his famous article on collectivist planning:

> There is no need to have recourse to the concepts of *utility*, of the *final degree of utility*, and the like; and neither is it necessary to have recourse to Pareto's concept of the *Indifference Curve*. . . .
>
> . . . the *tastes* of the various individuals. On these last we will make no presupposition, no preliminary inquiry, limiting ourselves simply to assuming the fact that at every given series of prices of products and productive services, every single individual portions out the income from his services between consumption and saving in a certain manner (into the motives of which we will not inquire) by which, at a given series of prices, the individual makes certain de-

[234] "Grundriss . . . ," pp. 398–99.

[235] *Ibid.*, p. 436.

[236] *Ibid.*, pp. 398 ff.

[237] "The fact is, that every person who is even moderately well off buys the greater part of the articles he uses for much less than the value they have for him" (*ibid.*, p. 417).

[238] *Ibid.*, p. 402.

[239] *Ibid.*, pp. 428–29.

[240] "Zur Verteidigung der Grenznutzenlehre," *Zeitschrift für die gesamte Staatswissenschaft*, LVI (1900), 577–91; amplified in some respects in "Professor Cassel's System of Economics," reprinted in *Lectures*, I, 219 ff. Cassel replied in an appendix to "Die Produktionskostentheorie Ricardos," *Zeitschrift für die gesamte Staatswissenschaft*, LVII (1901), 93–100.

[241] Cassel was not the equal of Pareto in this respect (see especially the latter's "Économie mathématique").

[242] "Zur Verteidigung . . . ," p. 580.

mands and certain offers. These quantities demanded and offered vary when the series of prices vary.

Thus we disengage ourselves from every metaphysical or subtle conception of utility and of the functions of indifference, and rely solely on the authenticity of a fact.[243]

Yet Barone is not an important figure in the movement to abandon utility. He employed this approach only in the one article,[244] and there perhaps chiefly to bring out the analogies between competitive and collectivist economies. What is more important, he did not discuss the crucial problem: Can one say more about the demand functions if they are derived from utility functions?

One final theorist of the period consistently ignored utility in his work on demand—Henry L. Moore. It was Moore's program to join economic theory with the then recent developments of statistical theory to quantify the important economic functions. In this lifelong task he has found no assistance in utility theory and paused only briefly to criticize it:

> In the closing quarter of the last century great hopes were entertained by economists with regard to the capacity of economics to be made an "exact science." According to the view of the foremost theorists, the development of the doctrines of utility and value had laid the foundation of scientific economics in exact concepts, and it would soon be possible to erect upon the new foundation a firm structure of interrelated parts which, in definiteness and cogency, would be suggestive of the severe beauty of the mathematico-physical sciences. But this expectation has not been realized. . . .
>
> The explanation is to be found in the prejudiced point of view from which economists regarded the possibilities of the science and in the radically wrong method which they pursued. . . . Economics was to be a "calculus of pleasure and pain," "a mechanics of utility," a "social mechanics," a "*physique sociale*." . . . They seemed to identify the method of physical sciences with experimentation, and since, as they held, scientific experimentation is impossible in social life, a special method had to be devised. The invention was a disguised form of the classical *caeteris paribus*, the method of the static scate.[245]

This is not the place to quarrel with certain aspects of Moore's methodological views, nor is it the place to discuss the deficiencies in his statistical work on demand, nor is it the place to give him his due as a major figure in the history of demand theory. It is a suitable place, however, to conclude our history of the theory of utility.

VIII. A THEORY OF ECONOMIC THEORIES

We have before us a fairly complete account of the major developments in one branch of economic analysis. I wish now to review this history with a view to isolating the characteristics of successful (and hence of unsuccessful) theories, where success is measured in terms of acceptance by leading economists. (It would require a different history to answer the interesting question: To what extent, and with what time interval, do the rank and file of economists follow the leaders?) The bases on which economists chose between theories may be summarized under the three headings of generality, manageability, and congruence with reality.

A. THE CRITERION OF GENERALITY

The successful theory was always more general than the theory it supplanted. The marginal utility theory was more general than the classical theory of

[243] "The Ministry of Production in the Collectivist State" (1908), translated in F. A. Hayek, *Collectivist Economic Planning* (London: Routledge, 1938), pp. 246, 247.

[244] Conventional utility analysis is used in his *Principi di economia politica*, Part I.

[245] *Economic Cycles: Their Law and Cause* (New York: Macmillan, 1914), pp. 84–86.

value (with its special cases of producible and nonproducible goods); the generalized utility function was more general than the additive utility function; the nonmeasurable utility function was more general than the measurable utility function. On the other hand, the Bernoulli hypothesis was rejected as arbitrary (i.e., particularizing). There was no important instance in which a more specific theory supplanted a more general theory, unless it was Marshall's assumption of the constant marginal utility of money, and this assumption had little vogue outside Cambridge circles.

What does generality mean here? Occasionally it is simply an application of Occam's razor, of using a weaker assumption that is sufficient to reach the conclusion in which one is interested. The nonmeasurable utility function was the leading instance of this kind of generality, although I shall argue below that perhaps logical elegance was not the major reason for abandoning measurability. Very seldom has Occam's razor beautified the face of economic theory.

More often, generality meant the encompassing of a wider range of phenomena. The marginal utility theory enabled economists to analyze the values of nonproducible goods and the short-run values of producible goods. The generalized utility function allowed the analysis of interrelationships of the marginal utilities of commodities, which previously had been outside the domain of utility theory.

Yet we must note that generality is often only verbal, or at least ambiguous. The Walrasian theory was more general than the Ricardian theory in that the former applied to both producible and nonproducible goods, but it was less general in that it took the supply of labor as given. Cassel's empirical demand curves seemed more general in that they were valid even if every element of utility theory was banished;[24] but the utility theorist Wicksell could reply that the utility theory was more general because it permitted welfare judgments. Unless one theory encompasses all the variables of the others, their order of generality will vary with the question in hand.

Generality, whether formal-logical or substantive, is a loose criterion by which to choose among theories. It is always easy and usually sterile to introduce a new variable into a system, which then becomes more general. Yet a more general theory is obviously preferable to a more specific theory if other things are equal, because it permits of a wider range of prediction. We turn now to the other things.

B. THE CRITERION OF MANAGEABILITY

The second criterion employed in choosing between theories has been manageability. Economists long delayed in accepting the generalized utility function because of the complications in its mathematical analysis, although no one (except Marshall) questioned its realism. They refused to include in the individual's utility function the consumption of other individuals, although this extension was clearly unimportant only in the social life of Oxford. The nonintegrable differential equation of the indifference curves was similarly unpopular. In these cases manageability was the prime consideration: economists tacitly agreed that it is better to have a poor, useful theory than a rich, useless one.

Of course, this is true, although the choice is not really this simple as a rule.

[24] Actually he put sufficient conditions on his demand functions to make them logically equivalent to those derived from indifference curves (see H. Wold, "A Synthesis of Pure Demand Analysis," *Skandinavisk Aktuarietidskrift*, XXVII [1944], 77 ff.).

Manageability should mean the ability to bring the theory to bear on specific economic problems, not ease of manipulation. The economist has no right to expect of the universe he explores that its laws are discoverable by the indolent and the unlearned. The faithful adherence for so long to the additive utility function strikes one as showing at least a lack of enterprise. I think it showed also a lack of imagination: no economic problem has only one avenue of approach; and the non- and semimathematical utility theorists could have pursued inquiries suggested by theories beyond their powers of mathematical manipulation.[247] The investigator in his science is not wholly dissimilar to the child in his nursery, and every parent has marveled at how often unreasoning obstinacy has solved a problem.

C. THE CRITERION OF CONGRUENCE WITH REALITY

The criteria of generality and manageability are formal; the empirical element entered through the criterion of congruence with reality. It was required of a new theory that it systematize and "explain" a portion of the empirical knowledge of the times. It must perform tasks such as accounting for the fact that often goods sold for less than their costs of production (which the marginal utility theory did) or for liking bread more when there was butter on it (which the generalized utility function did).

The reality with which theories were required to agree was one of casual observation and general knowledge. It was composed of the facts and beliefs that the men of a time mostly share and partly dispute and of the observations of men who earned and spent incomes and watched others do so. Of course the type and amount of such information varied widely among economists. Some, like Marshall, had a deep knowledge of their economies; others, like Edgeworth and Pareto, were more worldly scholars; still others, like Walras and the young Fisher, kept the world at a distance.

This casual knowledge was loose and relatively timeless with respect to utility theory; these economists knew little more about utility and not a great deal more about demand than their ancestors. In this respect utility theory is not wholly representative of economic theory; in population theory, for example, casual knowledge changed radically with the times and exercised a decisive influence on the comparative acceptabilities of various population theories. The one changing element in the general knowledge was the growing skepticism of hedonism in academic circles. Economists were surely (if improperly) more susceptible to the proposal to abandon the measurability of utility when the psychologists chided them:

> Important as is the influence of pleasures and pains upon our movements, they are far from being our only stimuli. . . . Who smiles for the pleasure of smiling, or frowns for the pleasure of the frown? Who blushes to avoid the discomfort of not blushing?[248]

[247] E.g., the generalized utility function suggested studies of the interrelations of prices in demand; the effect of other people's consumption on one's utility suggested the use of relative income status rather than absolute income in demand analysis; etc.

[248] William James, *Psychology* (New York: Holt, 1893), p. 445. William McDougall was more emphatic and pointed (as well as absurd and illogical):

> "Political economy suffered hardly less from the crude nature of the psychological assumptions from which it professed to deduce the explanations of its facts and its prescriptions for economic legislation. It would be a libel, not altogether devoid of truth, to say that the classical political economy was a tissue of false conclusions drawn from false psychological assumptions. And certainly the recent progress in economic science has largely consisted in, or resulted from, the recognition of the need for a less inadequate psychology" (*An Introduction to Social Psychology* [3d ed.; London: Methuen, 1910], pp. 10–11).

The sieve of casual knowledge was broad in its gauge. It could reject the notion (of Cassel) that consumers do not equate marginal utilities divided by prices because they do not know the prices, or the notion (of the abstemious Fisher) that the marginal utility of liquor increases with quantity. But it could not reject even the imaginary Giffen paradox. Casual knowledge is better calculated to detect new error than to enlarge old truth.

This third criterion of congruence with reality should have been sharpened—sharpened into the insistence that theories be examined for their implications for observable behavior, and these specific implications compared with observable behavior. The implication of the diminishing marginal utility of money, that people will not gamble, should have been used to test this assumption, not to reproach the individuals whose behavior the theory sought to describe.

Not only were such specific implications not sought and tested, but there was a tendency, when there appeared to be the threat of an empirical test, to reformulate the theory to make the test ineffective. Thus, when it was suggested that there might be increasing marginal utility from good music, as one acquired a taste for it, this was interpreted as a change in the utility function.[249] Yet if in the time periods relevant to economic analysis this phenomenon is important, it is a significant problem—the defenders had no right to rush to the dinner table. When it was suggested that the marginal utility of the last yard of carpet necessary to cover a floor was greater than that of fewer yards, the theory was modified to make the covering of the entire floor the unit of utility analysis.[250] They did not anxiously seek the challenge of the facts.

In this respect Pareto was the great and honorable exception. Despite much backsliding and digression, he displayed a constant and powerful instinct to derive the refutable empirical implications of economic hypotheses. He was the first person to derive the implications of the additive utility function with respect to demand and income curves. It was left for Slutsky to carry out this task for the generalized utility function, but Pareto—and he alone of the economists—constantly pressed in this direction.

But exception he was. The ruling attitude was much more that which Wieser formulated:

> Any layman in economics knows the whole substance of the theory of value from his own experience, and is a layman only in so far as he does not grasp the matter theoretically,—i.e., independently, and for and by itself,—but only practically,—that is to say, in some given situation, and in connection with its working out in that situation. If this be true, how else shall be better proved our scientific statements than by appealing to the recollection which every one must have of his own economic actions and behavior?[251]

That this criterion was inadequate was demonstrated by the slowness with which utility theory progressed. The additive utility function was popularized in the 1870's; it was 1909 before the implication of positively sloping income curves was derived. The generalized utility function was proposed in 1881; it was 1915 before its implications were derived. The chief of these implications is that, if consumers do not buy less of a commodity when their incomes rise, they will surely buy less when the price of the

[249] Marshall, *Principles* (8th ed.), p. 94; Wicksteed, *Common Sense*, I, 85.

[250] Marshall, *Principles* (8th ed.), p. 94; Wicksteed, *Common Sense*, I, 83; Pareto, *Manuel*, p. 266.

[251] *Op. cit.*, p. 5.

commodity rises. This was the chief product—so far as hypotheses on economic behavior go—of the long labors of a very large number of able economists. These very able economists, and their predecessors, however, had known all along that demand curves have negative slopes, quite independently of their utility theorizing.

Had specific tests been made of the implications of theories, the unfruitfulness of the ruling utility theory as a source of hypotheses in demand would soon have become apparent. Had these economists sought to establish true economic theories of economic behavior—that is, to isolate uniformities of economic events that permitted prediction of the effects of given conditions—they would not long have been content with the knowledge that demand curves have negative slopes. They would have desired knowledge on the relative elasticities of demand of rich and poor, the effects of occupation and urbanization on demand, the role of income changes, the difference between short- and long-run reactions to price changes, and a whole host of problems which we are just beginning to study. They would have given us an economic theory which was richer and more precise.

These remarks shall have been completely misunderstood if they are read as a complaint against our predecessors' accomplishments. It would be purposeless as well as ungracious to deprecate their work. They improved economics substantially, and, until we are sure we have done as much, we should find gratitude more fitting than complaint. But we should be able to profit not only from their contributions to economics but also from their experiences in making these contributions. That such able economists were delayed and distracted by the lack of a criterion of refutable implications of theories should be a finding as useful to us as any of the fine theoretical advances they made.

THE GENERAL MOTORS–UNITED AUTO WORKERS AGREEMENT OF 1950

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THE 1950 contract between General Motors and the UAW-CIO is, in my judgment, the most significant development in collective bargaining since the famous Taylor-Lewis steel pact of 1937. It not only measures the status of collective relations in one of the nation's most strategic labor-management power centers but indicates the probable course of collective bargaining in the mass-production industries for many years to come. Such an important labor treaty obviously deserves the attention of economists and statesmen.

I. THE TERMS OF THE AGREEMENT

In essence, this agreement comprises four clearly identifiable "collective-bargaining packages": (1) the reopening package; (2) the wage package; (3) the pension and insurance package; and (4) the contractual-rights package. Without details, the salient features of each are as follows:

a) THE REOPENING PACKAGE

The reopening package is unique in the history of collective bargaining. The contract is effective for a period of five years, which presumably removes the possibility of a strike over issues covered in the contract for five years. It also freezes in no uncertain terms the matters subject to collective determination.[1] No new issues of any kind may be injected by either party for any reason for five years. In the 1948 negotiations the corporation had offered to sign a five-year contract on this basis but finally settled for two years; in 1950 it was able to sell the entire package to the union. It is important to note, however, that strikes over production standards are permissible during the life of this contract, as they have been in previous agreements.

b) THE WAGE PACKAGE

The wage package, clearly an invention of the corporation, represents an extension of principles incorporated in a previous package, which had been bought very reluctantly by the union in 1948.[2] Provision is made for the auto-

[1] In the final paragraph of the contract the corporation and the union "each voluntarily and unqualifiedly waives the right, and each agrees that the other shall not be obligated, to bargain collectively with respect to any subject or matter referred to or covered in this agreement, or with respect to any subject or matter not specifically referred to or covered in this agreement, even though such subjects or matters may not have been within the knowledge or contemplation of either or both of the parties at the time they negotiated or signed this agreement."

[2] In the 1948 contract GM made four basic proposals: (1) to re-establish the buying power of an hour of work on a fair basis (this called for an increase of 8 cents per hour in base rates; the corporation was willing to freeze 3 of the 8 cents in the base rate); (2) to protect the buying power of an hour of work against changes in consumer prices (this was done by an escalator clause gearing upward and downward wage adjustments to the Cost-of-Living Index of the Bureau of Labor Statistics); (3) to improve the buying power of an hour of work, so that over a given period the

matic adjustment of wage levels on the basis of the cost of living and of the so-called "annual improvements" based upon technological progress. Each year, starting May 29, 1950 (the effective date of the contract), wages are to be increased 4 cents per hour in recognition that "continuing improvement in the standard of living of employees depends upon technological progress, better tools, methods, processes and equipment, and a cooperative attitude on the part of all parties in such progress." Wages are also to be adjusted quarterly to changes in the Consumer Price Index of the Bureau of Labor Statistics. The upward adjustment of wages in response to cost of living is unlimited, but there is a floor to their downward movement. In no event will a decline in the Index below 164.7 provide a basis for a reduction of wages. In other terms, the floor under wage reductions is 3 cents below the scale prevailing on the effective date of the agreement. The net effect of the 1950—over the 1948—wage deal is to increase the improvement factor from 3 to 4 cents (GM proposed to continue the 3 cents; the union asked for 5 cents; the compromise was 4 cents), and to continue in effect the cost-of-living adjustment feature (which the union wanted to eliminate altogether). The wage package also included a 5-cent increase for certain skilled workers and a liberalized plan for pay in lieu of vacations. According to union estimates, these items, together with some other fringes, add up to another 3 cents per hour.

c) THE PENSION AND INSURANCE PACKAGE

The pension and insurance package is perhaps the most liberal to be negotiated in the basic mass-production industries in the so-called "fourth round" of postwar economic concessions. The UAW contracts previously negotiated with Ford and Chrysler and the United Steelworkers' agreements with the steel corporations provide noncontributory pensions of $100.00 for employees at normal retirement age with twenty-five or more years of service. But these pension benefits include payments to retired employees under the Federal Social Security system, and the obligation of the company will diminish as benefits under the federal system increase. Under the GM plan, which also provides a $100.00 pension including social security, pensions may increase with increases in social security because the corporation agreed to a fixed monthly sum for payment of its portion of the benefits. Thus the UAW is able to claim that it has broken the $100.00 per month ceiling on pensions which had been common in the auto and steel plans previously negotiated.

The insurance benefits are equal to, or better than, most others previously negotiated in the basic industries. The corporation agrees to pay approximately half the cost of (1) sickness and accident benefits, (2) group life insurance and continuing insurance upon retirement (with no further cost to the employee), and (3) hospitalization and

worker is assured of an improved standard of living (this was to be achieved by the 3-cent annual-improvement increase in base pay); and (4) to stabilize relations over a period of time—a minimum of two years.

The UAW was not very happy with these proposals. In particular, the union disliked the cost-of-living escalator clause and the two-year freeze on reopenings. However, the bargaining position of the union at that time was weak. In strike votes taken on a corporation-wide basis, six locals had voted not to strike, and one of them was of substantial size. To avoid the risk of a strike under such circumstances, the UAW accepted the corporation's proposal.

surgical coverage for the employee's family as well as himself.

d) THE CONTRACTUAL-RIGHTS PACKAGE

In this area the UAW won a "modified union-shop" arrangement, which provides that all employees who are currently members of the UAW shall, as a condition of employment, maintain membership in the union (to the extent of paying membership dues and assessments) for the duration of the agreement and that all new employees, after being employed for 90 days, must join the union and pay dues and assessments for at least 1 year. But employees who are not members of the union are not required to join. In essence, this is an extension of the "maintenance-of-dues" principle in effect since the war, coupled with a union-shop arrangement applicable to new employees. Its effect will be to stabilize the existing membership in the union (the overwhelming majority of employees in the bargaining unit are already members) and to provide automatic machinery for bringing new workers into the fold.

Of even greater importance, however, are the rights which are retained by the corporation and the concessions which were *not* granted the union. For several years GM has been well satisfied both with the provisions of the contract and with its experience in operating under it. The UAW, on the other hand, has constantly sought changes in order to gain greater control over jobs. In the 1948 negotiations, for example, the union proposed to delete the "no-strike clause," to require all job assignments to be made on the basis of seniority, and to insert a provision that no employee could be reassigned to another job without his consent. The union also wanted to make production standards subject to negotiation and joint time study (the corporation has unilateral authority in this area) and to secure recognition of a steward system, calling for more than ten thousand functionaries in the plants, which would provide a reservoir of ten million man-hours per year of company time to handle grievances. In addition, the UAW wanted the subcontracting of work in any plant to be subject to negotiation and prior approval by the union. Feeling that such proposals would make it impossible to run the plants efficiently, the corporation turned down all these demands at that time. The union pressed many of these issues again in the 1950 negotiations, and the corporation again flatly refused to make concessions.

II. THE RATIONALE OF THE AGREEMENT

The 1950 agreement was acclaimed with enthusiasm by top union officials and with obvious jubilation by GM executives. The union called it "the most significant development in labor relations since the mass production industries were organized in 1936–37" and pointed to the "maturing relationship" between the UAW and GM.[3] The corporation called the five-year agreement "unprecedented in labor-management relations" and predicted that it would have a "stabilizing influence not only on our business but on the economy of the whole country." "This settlement," it pointed out, "should mean that all concerned can face the future with added confidence."[4] Such statements are indeed significant, coming as they do from

[3] See text of the UAW-CIO statement, issued May 23, 1950 (quoted in the Bureau of National Affairs, *Daily Labor Report*, May 24, 1950).

[4] See text of statement issued by GM on May 23, 1950, quoted in full in the Bureau of National Affairs, *Daily Labor Report*, May 23, 1950.

a union and a company whose reputations in the past for name-calling and mudslinging have been notorious. In this case, each of the parties seems to have won many of the things it wanted. What, then, may be the rationale of each side with respect to this deal?

a) THE OBJECTIVES AND STRATEGY OF THE CORPORATION

In collective bargaining, GM always appears to have clear-cut objectives and a long-range plan; and, as a shrewd observer once pointed out to me, "GM has steps five and six of that plan in mind when it takes steps two and three."[5] In bargaining it has usually been aggressive rather than defensive. While carefully appraising the bargaining situation of the union, it has listened to demands for weeks without committing itself on wage demands. Then, as in 1948 and 1950, it comes forth with a prefabricated proposition—a "blue-plate special"—which it proceeds to sell the union with as few substitutions as possible. In sharp contrast to other large corporations in the basic industries, GM in recent years has never let itself say "No" to union demands, only to back down later in the face of union pressure.

Fundamentally, it appears that GM has been interested in four major objectives as far as labor relations are concerned: (1) the protection and improvement of the economic well-being of the corporation; (2) the preservation of unilateral managerial rights and retention of freedom to exercise managerial functions; (3) the achievement of stable, predictable, and "business-like" relations with the unions it has under contract; and (4) the development of collective bargaining as an effective means of preserving and strengthening the free-enterprise system.

The economic well-being of a company depends on its ability to make profits. The economic concessions to workers must be consistent with this objective. In this respect, GM has been strikingly successful. For example, its postwar profits, as a whole, have been tremendous. In 1949 its net income was over $656 million, which established an all-time record for an American corporation. Its net income as a percentage of sales in the same year was 11.5, as compared with 6.3 for Chrysler, 7.2 for Nash-Kelvinator, 5.8 for Studebaker, and less than 4 per cent for both Hudson and Packard. In the three-year period from 1947 through 1949 alone, GM reinvested over $664 million, as compared with a total of only $448 million for the entire fourteen previous years from 1933 through 1946.[6] No reasonable person could claim, therefore, that GM jeopardized its economic welfare by paying too much for labor!

For a five-year period GM has agreed to raise wages approximately 2.5 per cent a year. This figure, in the view of GM's president, approximates the average of what the country can do, when judged by its long-run record in the last fifty years; it is not, however, an estimate of what GM can expect to achieve.[7] Considering the new improvements being made in the GM plants and the enor-

[5] For a detailed account of GM's labor policy up to 1947 see my previous study of the corporation (F. H. Harbison and R. Dubin, *Patterns of Union-Management Relations* [Chicago: Science Research Associates, 1947], pp. 45–64).

[6] Taken from *Moody's Industrials, 1950*, p. 2852. With a record such as this, GM would certainly not face many difficulties in attracting outside capital, if needed.

[7] See talk by C. E. Wilson, "Five Years of Industrial Peace," made June 8, 1950, at a National Press Club luncheon in Washington, D.C.

mous sums reinvested in the business in recent years, it would be reasonable for the corporation to expect that its annual improvement in productivity would greatly exceed the average for the country. Thus the corporation is pretty safe in guaranteeing its employees this annual wage increase in return for the assurance that there will be no strikes or interruptions in production for five years, particularly when it also knows that unions will exert continuous cost-raising pressures on its competitors.

With respect to the cost-of-living feature of the wage package, the corporation can logically assume that increases in the price of its products can easily be made to offset increases in wages in a period of general inflation. In the event of war it can count on selling its products on a cost-plus basis. In the event of substantial deflation, however, there is a limit below which wages cannot be reduced. Presumably, the corporation, after a realistic look at the economic and political forces at work throughout the nation, does not expect drastic deflation; and most economists with any political realism would probably agree that such an assumption is warranted.

The 10 or 12 cents called for in the pension and insurance package were necessary concessions to match working conditions and benefits which the union had already won from the major competitors. In selling a five-year contract to the UAW, GM obviously would not try to undercut the economic concessions already made throughout the industry. The cost of liberalization of vacation pay, of course, was minor; and the 5-cent increase for skilled workers was needed to maintain a proper differential over unskilled workers and to insure an adequate supply of craftsmen. On all these points, GM could well afford to be generous.

The retention of managerial functions has always been a central objective of GM in collective bargaining, and its policy in this respect has been to restrict the scope of matters subject to joint determination. In particular, the corporation has insisted on unilateral authority to set production and performance standards; to maintain discipline and efficiency of employees, to hire, promote, and transfer employees; to discharge for cause; to discipline any employee for taking part in any violation of the no-strike section of the agreement; and, in general, to determine the products to be manufactured, the location of plants, the schedules of production, and the processes of production. Fortified by specific provisions in its labor agreements, GM has been extremely resolute in exercising these rights. In previous years it has not hesitated to discipline employees deemed responsible for stoppages or slowdowns, even in the face of threats by the union to close entire plants, and its actions in this regard have been upheld by the umpire under the contract. It has been able to exercise in practice its right to transfer employees on the basis of ability, merit, and capacity and to stave off union demands for seniority systems to govern such transfers.[8]

Finally, GM has been able to maintain production standards at a satisfactory level. In this respect it appears to have a significant advantage over its competitors. In most companies in the basic industries, production standards were set rather loosely during the war. In returning to normal production after the end of

[8] Cf. Harbison and Dubin, *op. cit.*, chaps. ii and iii.

hostilities, unions have tended to fight every attempt of management to tighten standards, as an unwarranted speedup. In GM, however, management never let the standards get loose during the war, and it has been consistently "tough" in maintaining and improving standards since that time. The union has been aware that the corporation stands ready to fight with all its resources any attempt to weaken its unilateral authority in this area and thus has been cautious in authorizing strikes over issues of this kind.[9] For these and many other reasons, GM appears to be well satisfied both with the provisions of its contract and with the administration of the agreement on a day-to-day basis.

Stability and predictability are sought by all corporations in collective bargaining. To achieve these ends, GM long ago adopted a policy of being "tough but fair" with union leaders, which, in the view of GM executives, has been an important factor in the development of responsible labor leadership. The result is that both parties have been quite successful in carrying out their responsibilities under the agreement, even though the contract has always been more of a truce than a pact for union-management harmony.

In signing the two-year contract in 1948, the corporation assured itself of no major interruptions during the crucial period when it was introducing and bringing into production its new models. During the two-year period its two major competitors were shut down by strikes—Ford for 26 days in the spring of 1949 and Chrysler for 99 days early in 1950; and the steel industry was down during a strike in the fall of 1949. Thus the five-year pact signed in 1950 by GM is a long step toward stability and certainty in labor relations; and again it must be emphasized that such stability is tied to a contract which is quite satisfactory to the corporation.

Finally, the 1950 settlement squares very nicely with some of the broad economic and political goals of the corporation in general and with its concept of the appropriate role of collective bargaining in particular. Contrary to popular belief, GM executives have, for many years, indorsed the idea of collective bargaining. In 1946, Alfred P. Sloan, chairman of the board, defended collective bargaining as a bulkhead which should provide "an irresistible force against encroachments on the competitive system of enterprise on the part of any outside influence."[10] Yet, as President C. E. Wilson pointed out in 1947, collective bargaining must be contained within its proper sphere. Unless this is done, he said, "the border area of collective bargaining will be a constant battleground between employers and unions, as the unions continuously attempt to press the boundary farther and farther into the area of managerial functions."[11]

The UAW and Walter Reuther have been trying doggedly to broaden that area of collective bargaining. In the 1945–46 strike Reuther tried to bring price and profit policies within the scope of collective relations. He has advocated

[9] Since production standards are not within the jurisdiction of the umpire under the contract, the union can authorize strikes on production standards if agreement cannot be reached with the corporation.

[10] Alfred P. Sloan, Jr., *Why the Confusion* (Detroit: General Motors Corporation, November 13, 1946).

[11] C. E. Wilson, *Legislation for Labor Peace* (a statement made before the U.S. Senate Committee on Labor and Public Welfare, February 5, 1947) (Detroit: General Motors Corporation).

industry-wide conferences, the annual wage, and many programs of joint economic planning in the automobile industry, including a recent idea for leveling peaks and valleys in automobile production to make year-round full employment feasible. GM has always been afraid of Reuther's "labor statesmanship," his "socialistic ideas," and, above all, his determination to burst out of the confines of collective bargaining as viewed by the traditional business unionist. Consequently, one of its major objectives has been to seize the initiative from Reuther and force him "to check his various plans at the door" before he sits down to bargain with management.

GM executives undoubtedly feel that the 1948 and 1950 agreements represent substantial progress in this direction. The areas of exclusive managerial authority have been fixed; there has been no talk about prices and profits in wage negotiations. The annual-wage idea is on ice for at least five years; and there is no need for giving any attention whatever to Reuther's broad economic programs, since it is obvious that, until GM acts, such plans are stymied.

Furthermore, as the record indicates, Reuther accepted GM's wage formula; the corporation did not buy Reuther's ideas. GM is now boasting that the union leadership in its plants recognizes "that to produce more with the same amount of human effort through technological improvement is a sound economic and social objective that discards the false philosophy of made work, featherbedding, and the erroneous idea that machines take the bread out of the workmen's mouths."[12]

In looking at the economy as a whole, Wilson points out that this agreement is neither inflationary nor deflationary. "Inflation," he says, "depends upon money supply, the fiscal policies of our federal government, credit policies of banks and finance companies . . . wars . . . strikes, etc., none of which employees in the corporation have much to say about."[13] To sum it all up, the corporation takes pride in negotiating an agreement which it hopes will have a stabilizing effect on the economy and the American enterprise system.

Yet GM had to make a very important right-about-face as the price for getting the 1950 stabilization pact. For years the corporation had opposed the idea of compulsory union membership—"of making workers pay tribute for the right to work," as the slogan goes. Indeed, Wilson said not many years ago that he would retire to a farm before signing a closed-shop agreement. This principle, apparently, is now discarded as outmoded and obsolete for a company living in an age of hard-boiled collective bargaining. Wilson rationalizes this change in this way: "As a practical matter, any employer in whose plants or offices unions have bargaining rights has a union shop . . . not by the specific definition of the term but in a broad sense in that he must deal with the union in regard to wages, hours. . . ."[14] With its characteristic shrewdness in bargaining, however, GM gave only "half the union shop"—by making membership compulsory only for new employees. It may be able to buy something else with the other half, five years hence.

[12] C. E. Wilson, "Five Years of Industrial Peace."

[13] *Ibid.* In this respect, Wilson's ideas are in sharp contrast with those of many other industrial leaders in the basic industries, who assert that wage increases have been a primary determinant of inflation.

[14] *Ibid.*

b) THE OBJECTIVES AND STRATEGY OF THE UAW

The UAW-CIO is reputed to be the most militant and aggressive of the mass-production unions; and, by virtue of the leadership of Walter Reuther, it is certainly the most imaginative. Like GM, the UAW appears to have clearly defined plans and objectives and a persistent strategy for achieving them. By resorting to a "one-at-a-time" bargaining strategy, the UAW has successfully forced companies like Ford and Chrysler to give ground on issues such as wages and pension and insurance programs, which it later forced GM not only to accept but to liberalize as well. But the contract with GM is the "key bargain" in the industry. GM has about 50 per cent of the total production of automobiles in the country. It is the richest and the strongest of the auto companies. Thus the UAW can push the automobile industry only as far as it can push GM.

The UAW has had four basic objectives in bargaining: (1) to build a stronger and more secure organization; (2) to acquire control over jobs by limiting the corporation's unilateral exercise of managerial functions; (3) to win a better standard of living for GM employees; and (4) in broader terms, to search for some solution to the problem of economic insecurity by "transforming a formless, anarchic economy into a rational industrial society."[15]

The new contract greatly enhances the prestige and security of the union in the GM plants. The winning of the modified union shop is a clear-cut and unqualified victory. In order to implement its demand for a union shop, the UAW was obligated under the Taft-Hartley law to submit the issue to a vote of all the employees in the bargaining unit. GM put obstacles in the way by refusing to permit the election to be held on company property. Despite this obstruction and also bad winter weather, 87 per cent of the eligible employees turned out in February, 1950, to vote. Of the valid ballots cast, 89 per cent were for the union shop. Consequently, the union apparently made it clear to the corporation that there would be no five-year stability pact without a substantial concession on union security. As every unionist knows, the most difficult membership problem in a large organization is to keep track of new employees and get them into the union. If this problem can be solved and if the vast majority of present employees are covered by a maintenance-of-membership provision for the duration of the contract, the stability and financial security of the union are very effectively guaranteed.

Of even greater consequence, however, are the implications flowing from this concession. The UAW leadership, rightly or wrongly, had felt up to the time of this new agreement that GM would try to smash the union at the first opportunity. Indeed, the union leaders viewed the corporation's policy of containing collective bargaining as a tactic designed ultimately to strangle organization in the plants. The inclusion of the modified union shop in a five-year contract and the conciliatory approach of the corporation in bargaining have finally convinced the union leadership, it appears, that GM has accepted the UAW on a realistic and permanent basis.

It is obvious, however, that the UAW did not acquire much additional control over jobs in the new agreement; nor did

[15] For an elaboration of this objective see, in particular, Victor G. Reuther's article, "The Next Fifty Years," *Detroit*, June, 1945.

it succeed in limiting the corporation's unilateral exercise of managerial functions. In the 1948 negotiations, as I have indicated, the union pressed hard for changes in the contract but won none of its major demands.[16] In 1950 the union wanted, among other things, changes in the transfer clause, an improved production standard clause, increased committeeman representation, and a broadening of the jurisdiction of the umpire. With the exception of a minor concession on the latter issue, it got no significant concessions. Indeed, in view of the persistent opposition of the corporation to such changes, it is doubtful whether the union seriously expected to make progress in this area. It did win some liberalization in the calculation and the retention of seniority and some other minor concessions, but these did not significantly increase the union's job control.

On the other hand, UAW spokesmen have correctly pointed out to the rank-and-file that this contract does not prohibit strikes over production standards; and, as one of them asserted, "Almost any dispute between the union and the corporation could have some relation to a production standard." In this respect, the union has an "out"; but it is significant that in the past strikes over production standards have been quite rare in most plants.

In bargaining for a better standard of living, the UAW was very successful. The union got from GM a pension and insurance package at least as favorable as, and probably more liberal than, those previously negotiated in the basic industries. Above and beyond this, it obtained wage increases this year and a guaranty of a progressive increase in the standard of living for its workers for each of the four succeeding years.

The UAW has always favored the annual-improvement factor. This was the one feature of the GM formula that it accepted in 1948 without reservation. In 1950 it wanted a 5-cent improvement factor and felt somewhat cheated by having to settle for 4 cents. But the union had consistently emphasized the importance of increases in real wages and in sharing the greater production made possible through technological progress. The union has always insisted, moreover, that progress is primarily the result of improvements in technology and is not dependent upon greater effort and speedups on the part of workers. Here the corporation and the union are in accord.

On the other hand, the UAW never liked the cost-of-living escalator idea. This was the part of the 1948 "blue-plate special" which the union found very distasteful; but, as I have pointed out, its bargaining position at that time made it expedient to swallow it. In 1950 the UAW resolved to eliminate the cost-of-living provision. It had no intention, furthermore, of closing the doors on negotiations for a five-year period. Nevertheless, when it became clear that the many concessions which the corporation was prepared to make were tied to the five-year stability package, the union needed the cost-of-living adjustment to protect itself against inflation. The fact that there is a floor under wage reductions made the escalator clause much more palatable. In the end, therefore,

[16] When given a fifty-five-page answer by the corporation to the transfer demands of the union in 1948, Art Johnstone, director of the UAW General Motors Division, said that he had been given the polite No, the long No, and the short No, but this was the first monumental No he had ever gotten in negotiations. The expression is now part of the saga of GM-UAW relations.

the UAW rationalized its agreement to this provision on the grounds that "the cost-of-living allowance principle would force industry to abandon the practice of capturing in the market place through higher prices what it yields at the bargaining table in higher wages."[17] It is, of course, hard to believe that the union takes such a statement very seriously, but its use as a rationalization is an important indicator of the union's acquiescence to the principle.

The record is clear, however, that the UAW has secured for GM workers a *guaranty of increases in real wages* for a five-year period which greatly exceeds the actual increases in real wages in the mass-production industries during the last five years, when the average hourly earnings in the auto industry were increased by 50 cents, but real earnings advanced only 8 cents.[18] On a comparable basis, employees in the steel industry increased their real earnings by only 11 cents.[19] The gains were comparable in most other mass-production industries. This guaranty exceeds the increases in real wages during World War II. Consequently, a *guaranty* of a 20-cent real increase for the next five years undoubtedly represents the greatest economic gain secured by any union in the mass-production industries in the past decade. In other words, the GM wage package, even when coupled with a five-year contract freeze, is a deal which no realistic and intelligent trade-unionist could turn down.

How, then, does the 1950 settlement square with the long-range economic and political goals of the Reuther forces? This question is perhaps the most difficult of all to answer. Reuther's basic contentions have been (1) that wage increases should be granted without price increases (i.e., they should be paid out of profits and increased productivity), so that labor can "increase its standard of living with the community and not at the expense of the community"; (2) that economic stability and security must be based on increases in real wages—buying power—to keep pace with the increasing productivity of the nation's farms, factories, and mines; (3) that the wage-price-profit relationship has been out of balance and must be corrected to avoid a repetition of the 1929–32 disaster; and (4) that private enterprise, as the price for its survival, must serve the public by being efficient, competing in a free market, investing its profits in expansion of plants, and passing on the benefits of technological progress to consumers and labor.[20]

It is perhaps wishful thinking on the union's part to assume that GM has agreed that wage increases are to be made without price increases. In 1945–46 the corporation flatly closed the door in Reuther's face on this issue and claimed that prices were "none of the Union's damn business." There is no indication that the corporation has changed its mind on this score. Moreover, to say, as the union does, that the 1950 settlement with the corporation "brings nearer to balance the distorted wage-price-profit relationship that makes for economic instability and human insecurity" exaggerates the economic significance of the agreement, because prices and profits will largely

[17] UAW statement of May 23, 1950.

[18] Computed from Bureau of Labor Statistics data in *Monthly Labor Review*. Real earnings increases are expressed in 1935–39 dollars.

[19] *Ibid.*

[20] See UAW statement of May 23, 1950; also Harbison and Dubin, *op. cit.*, chap. ii; and Walter P. Reuther, "The Challenge of Peace," *International Post War Problems*, II (April, 1945), 6–7.

depend on general business conditions and the demand for automobiles rather than on this particular wage settlement. Certainly, GM gave the union no assurance that it was going to pay increased wages out of profits!

Yet Reuther can take a great deal of credit for forcing GM to meet its responsibilities to the public. The record clearly shows that the GM wage formula, which is certainly the longest forward step taken in labor relations by any large corporation in recent years, was devised as a means of living with a determined and militant labor union. Reuther's great admiration for the efficiency of GM is no longer a secret. Nor is there much doubt that the "maturing relationship" of which the union speaks means that Reuther is resigned to doing business with large-scale private enterprise for a long time to come. To put it another way, Reuther thinks that he is making GM into a "responsible" enterprise, just as the corporation thinks it is making the UAW into a "civilized" trade-union.

The union's plans for the annual wage, for leveling off the peaks and valleys of automobile production, and for other bold measures to transform an "anarchic economy" into a more rational industrial society are in abeyance as far as collective bargaining is concerned. These objectives presumably will be pushed for the next few years via the route of political action.

There are very good reasons why both parties should be satisfied with the 1950 agreement, for it reflects gains for which each has long striven. This contract, however, is no manifestation of basic harmony between the interests of the corporation and the union; nor is it in any way a "sweetheart" agreement born out of collusion. The GM agreement of 1950 is a shrewd and realistic treaty which has been hammered out over a period of years by an unusually efficient, farsighted, and intelligent management and an unusually militant, aggressive, and imaginative union.

III. THE SIGNIFICANCE OF THE AGREEMENT

The GM contract of 1950 shows how deeply the roots of collective bargaining have grown into the institutional structure of the American enterprise system. Over the years the parties have learned to live under a negotiated labor agreement, and day-to-day relationships have been fairly well stabilized. The early intense factionalism within the union is gone, and a clearly discernible bureaucracy is getting a firmer grasp over the affairs of the organization. From a practical political standpoint, the corporation has accepted collective bargaining as a necessary condition for its survival. GM recognizes that it would be impossible as well as undesirable to get rid of unions in its plants. The bargainers on both sides of the table are seasoned negotiators, backed up by scores of experts and specialists. This kind of collective bargaining calls for intelligent trading rather than table-pounding, for diplomacy rather than belligerency, and for internal union discipline rather than grass-roots rank-and-file activity. As the union so correctly points out, the 1950 contract reflects a maturing relationship with GM. In a less striking, though nonetheless certain, manner collective bargaining throughout all the mass-production industries is maturing in the same way.

The GM contract is a monumental piece of evidence that collective bar-

gaining is here to stay. Accordingly, I submit that the question of whether or not there should be collective bargaining in our economy is no longer pertinent for the economist. He must proceed on the assumption that collective bargaining is now an inseparable part of the private-enterprise system in America.

What, then, are the most probable economic implications of this agreement? The answer depends on the type of influence this settlement is destined to have as a key bargain.

GM is the dominant corporation in the automobile industry. There are also good grounds for assuming that it is the most efficient. Its financial resources, its earning power, its production record, its reputation among other manufacturers, and its appraisal by the union tend to support this conclusion. Furthermore, as I have already pointed out, its production and performance standards for manpower are relatively high.

I believe that the GM pact of 1950 is more likely to be a *ceiling* than a *standard* or pattern for settlements which will ensue throughout the automotive and related industries. Indeed, some of the early statements of the union lend support to this view. Walter Reuther was quoted as saying that the union is not committing itself to five-year contracts as such and that the GM pattern will be "trimmed" to meet the occasion in other bargaining conferences. He insisted that, if any automobile company were forced to the wall in the future, the failure would be attributable to inefficient management, not to the demands of labor.[21] Thus he recognizes that many companies simply will not be able to match the GM standard.

[21] See article by Walter W. Ruch, in *New York Times*, May 25, 1950, p. 22.

In bargaining with other companies in the automobile, auto-parts, and related manufacturing fields, the UAW may not be too anxious to agree to five-year contracts unless it gets a wage package and a pension and insurance arrangement at least as liberal as the GM settlement provides. Furthermore, from the union's standpoint, it is probably much wiser to bargain piecemeal each year and to reserve the right to press for other contract changes as the occasion arises. A five-year contract freeze, in the opinion of many labor leaders, might seriously debilitate their local unions. Finally, the leadership responsible for tying up the union for five years may find itself in an embarrassing predicament if the deal does not work out too well in practice because of unforeseen economic circumstances. As long as the automatic increases in the GM contract provide each year for a higher ceiling for bargaining—i.e., a good basis for asking for more from other companies—the union has little to gain from five-year freezes.

Thus the employers throughout the automobile and related industries are in the position of having to pay a handsome price if they want a long-term stabilization pact. To the extent that they are less efficient than GM or in a weaker financial condition or in a relatively poor position marketwise, they may not want to pay this price. They will have to continue to bargain, as they have in the past, on the instalment plan. Moreover, many companies might not want to freeze their existing contracts for five years. Some are faced with the problem of tightening loose production standards, of working out wage inequities, of restoring discipline in the plants, and of recapturing managerial rights which

they feel they have lost. It is important to remember that GM wanted a five-year contract to *retain*, not to *regain*, its managerial functions. After talking with a great many employers during the past year, I am convinced that very few companies are in so favorable a position. Most of them feel that they must retake ground lost through years of weak defensive bargaining with unions.

Consequently, some of these companies are likely to say to the union, "We'll give you a dollars-and-cents deal similar to GM in return for a five-year contract *and* an agreement on your part to tighten up loose standards, to reduce individual wage rates which are excessively high, and to restore certain managerial functions to us." Since this kind of proposition would involve the union's giving up job controls which it has already acquired, it would not be very attractive to most labor leaders. The union, of course, might be willing to agree to some such arrangement if the company were in such a poor competitive condition that immediate increases in efficiency were necessary to save the jobs of the union members. In such a situation, however, management would probably be in no position to agree to a five-year program of wage increases in the first place.

In other situations, perhaps, term settlements may follow the GM pattern, but with deviations. In July, 1950, for example, the UAW negotiated a five-year pact with Allis-Chalmers which provides for a pension program, a cost-of-living escalator arrangement, and a 3-cent improvement factor. However, the latter two provisions are "purely experimental," and either party may reopen on wages in two years, thus terminating the experiment. The success of this arrangement, it is also indicated, will depend on the outcome of the efforts of the parties to clear up internal wage inequities which have been troublesome for years. However, even watered-down settlements such as this one will be daring as long as Chrysler, Ford, Nash, and other manufacturers have contracts (signed prior to the GM pact) which cannot be opened up for a year or two and which have pension and insurance packages but no wage package.

Conceivably, some local union might persuade a company with an unusually high rate of increase in productivity to give more than the GM standard, but I should think such cases would be rare because the "key bargain" usually establishes the upper limit of union expectations, so far as economic gains are concerned. It is more likely that the UAW will try to bring Ford and Chrysler as close as possible to the GM standard on the next reopening and then perhaps force one of them to go beyond GM on a subsequent reopening just prior to the expiration of the GM pact. Such tactics would be consistent with the UAW strategy of using these corporations as a wedge for prying concessions from GM. These companies, of course, may develop some counterstrategy of their own; but in any case they will probably not want to go beyond the GM economic standards.

As in the past, the UAW is likely to make a lot of settlements for less than the "key bargain" with small companies, marginal enterprises, and firms in miscellaneous industries where it has contracts. In some of these cases, pension plans may not be demanded; and, in many, wage increases may be very small. It is becoming increasingly clear that the mass-production unions are willing

to make all kinds of concessions to companies which are in a tenuous competitive position.[22]

The GM contract of 1950 does not imply, therefore, that wages will be equalized in the UAW's segment of American industry; nor does it represent a step in the direction of industry-wide bargaining. On the contrary, it is a further indication that the pattern of key bargains as reference points for a wide diversification of individual bargains is becoming more generally recognized as the logical type of collective relationships in the mass-production industries.

The repercussions of the UAW-GM contract, however, may be felt far beyond the confines of the automobile, automotive-parts, and farm-implement industries, where the UAW strength is concentrated. GM has signed a comparable agreement with the International Union of Electrical Workers (CIO), covering employees in its electrical-manufacturing and refrigeration divisions. Thus the same economic benchmarks are established in another important mass-production field.

The extent to which these key bargains in autos and electrical manufacturing will influence future developments in the steel and allied processing and fabricating industries is, of course, a matter of pure speculation. For the most part, the large steel corporations have employed a defensive collective-bargaining policy, consisting of flat denials of union demands at the outset of negotiations, followed later by substantial concessions in the face of union pressure. They may now try something more spectacular in long-range agreements. But the steelworkers' union has never looked with much favor on the bargaining philosophies of the UAW, and that union was quite dissatisfied with a two-year contract with no reopening made in 1947. There is thus no reason to believe that the GM pact will be copied in the basic steel industry. It is true, nevertheless, that, for the last five years, economic settlements in steel have been articulated with the settlements in autos and electrical manufacturing as well as in many other mass-production industries. Thus the bargainers in steel cannot avoid using the GM pact as a point of departure.

The GM pact, then, is likely to have a generally stabilizing influence on collective bargaining throughout the mass-production industries. For the first time, negotiations in an important labor-management power center have resulted in the establishment of a progression of economic benchmarks which are pegged for a significant period of time. These benchmarks provide pensions and insurance, along with wage increases of 2½ per cent a year. The 2½ per cent figure is somewhat less than the generally accepted estimates of the average annual increase in output per man-hour in the last half-century. To the extent that these benchmarks are effective as ceilings, they may stabilize wage movements at or below the GM standard throughout large sectors of the basic industries for five years. It is probable that wage increases in the less efficient firms will be less than 2½ per cent a year, provided that the labor market is not extremely tight. In the more efficient companies, however, there are not likely to be corresponding increases above 2½ per cent. Thus there is a fair chance that

[22] This conclusion is based in part on preliminary findings of a forthcoming study by George Seltzer on pattern bargaining in the steel and the steel-processing and fabricating industries.

consumers may reap in lower commodity prices some of the benefits of increased productivity in the more efficient firms, including GM. Such firms, however, may be in a position marketwise to keep prices up and thereby expand their profits, which would provide an added incentive for unions to press for big new economic packages near the end of the five-year stabilization period.

The GM contract has set up an intriguing experimental situation which bears very careful watching by economists and all those interested in industrial relations. In the event of war, the experiment will be of a different kind. The question then will be whether governmental wage controls will follow the path blazed at GM or whether the GM pact will be thawed out to conform to some other kind of wage stabilization policy.

THE THEORY OF EMPLOYMENT AND STABILIZATION POLICY[1]

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RECENT developments in the static theory of employment, output, and general level of prices make it desirable to reconsider some positions with respect to economic policy—positions upon which the generation of economists trained since about 1937 has been nurtured. While these theoretical developments cannot be considered as new, since they can be inferred from a careful examination of some neoclassical doctrine, whether their significance was realized by their original exponents is highly questionable. In any event, it is only recently that they have again been brought into a light that for more than a decade has been almost completely held by the "Keynesian" theory.

The developments to which I refer are those which have been presented by Patinkin, Friedman, and Pigou,[2] the most important of which I consider to be the inclusion of "assets"—physical and monetary (cash and government)—as one of the variables in the aggregate consumption function.[3] This development will be restated and compared with what I shall term the "Keynesian" position, and certain policy implications of the "Keynesian" position—particularly those relating to wage policy, secular stagnation, and the impacts of monetary and debt operations—will be re-examined. Such an analysis can be justified on the basis of its making more understandable the bases for the two different sets of conclusions, though it does not constitute a new theory.

I

I shall consider as a distinguishing feature of the "Keynesian" theory the assumption that real consumption expenditure (and hence real saving) is a function of real income and that real investment is a function of the rate of interest.[4] By real values I shall mean money values deflated by an index of the general level of prices for goods and services. Government expenditures for goods and services, tax collections, transfer payments, the export surplus, and other factors which affect disposable income or which are added to consumption and investment as components of aggregate demand for

[1] I am particularly indebted to Milton Friedman for the initial interest in this problem which he stimulated and for his suggestions for policy evaluation. Responsibility for any errors in interpretation and judgment, however, rests solely upon me.

[2] See Don Patinkin, "The Indeterminacy of Absolute Prices in Classical Economic Theory," *Econometrica*, XVII (1949), 1–27; "Price Flexibility and Full Employment," *American Economic Review*, XXXVIII (1948), 543–64; and "Involuntary Unemployment and the Keynesian Labor Supply Function," *Economic Journal*, LIX, 360–83; Milton Friedman, "A Monetary and Fiscal Framework for Economic Stability," *American Economic Review*, XXXVIII (1948), 245–64; and A. C. Pigou, "Economic Progress in a Stable Environment," *Economica*, XIV (new ser., 1947), 180–90. A similar theory is implied by James Tobin in "Money Wage Rates and Employment," included in Seymour E. Harris (ed.), *The New Economics* (New York, 1947), chap. xl, and James Duesenberry, *Income, Saving, and the Theory of Consumer Behavior* (Cambridge, Mass., 1949). Duesenberry does not test the theory directly, however, in his empirical analysis.

[3] "Assets" will also enter other functions—the labor-supply and money-demand functions, in particular. However, the conclusions of this analysis are not substantially modified by their exclusion from these functions.

[4] Lawrence R. Klein, *The Keynesian Revolution* (New York: Macmillan Co., 1947), esp. chap. iii, and the technical appendix, pp. 192–213.

goods and services will be assumed as exogenous and as constants in real terms. Under these assumptions, aggregate real expenditure (demand) for goods and services will be a function of the rate of interest and of real income. No modification in principle will result if real income is included as a determinant of the level of real investment (or of the other expenditure components which are considered here as exogenous) and if the rate of interest is inserted as a variable in the aggregate consumption function, since aggregate real demand for goods and services will still be a function of real income and of the rate of interest.

Defining equilibrium in the "commodity market" as the equality between real income and real expenditure upon goods and services (real consumption + real investment + real government expenditure + the real export surplus, for example) or, as it is frequently stated, as equality between real saving and real investment, there will be various combinations of the rate of interest and real income which will satisfy this condition for equilibrium. Denoting real income by X and the rate of interest by r, these combinations can be represented by the points on a line such as the solid line AA' in Figure 1, where the slope of the line depends upon the nature of the relationship between real investment and real consumption and the rate of interest. In the special case in which the rate of interest does not enter either the consumption or the investment functions, a single level of real income (X) and any level of the rate of interest (r) will fulfil the condition for equilibrium in the "commodity market." This case is portrayed by the broken line BB' in Figure 1. It should be noted that these combinations of real income and the rate of interest which will fulfil the condition for equilibrium in the "commodity market" are independent of the general level of prices.

If the combinations of X and r which will fulfil the condition for equilibrium in the "commodity market" (will equate savings and investment) are as represented by the solid line in Figure 1, a unique equilibrium level of real income cannot be determined from this information alone. Either X or r has to be determined in some other market (the rate of interest might be fixed by governmental action, for example) or combinations of X and r which will maintain equilibrium in one of the other markets have to be derived before a unique equilibrium level of X (if such exists) can be determined. In the "Keynesian" theory there are various combinations of X and r which will fulfil the condition for equilibrium in the "money market"—will maintain equality between the quantity of money demanded and the quantity of money supplied—the supply of money being assumed as a constant and exogenously determined. Assume the real demand for cash balances to be an increasing function of real income and a decreasing function of the rate of interest. The real supply of money will be inversely proportionate to the price level. Hence, the combinations of X and r which, with a given supply of money, will fulfil the condition for equilibrium in the "money market" will not be independent of the general level of prices. For each price level there will be a set of combinations of X and r which will fulfil the condition for equilibrium. These sets are represented by the solid lines in Figure 2.

In the special case in which there is a level of the interest rate at or below which any additional real cash balances will be "held," the combinations of X and r which will fulfil the condition for equilibrium in the "money market" may

be represented by the broken line in Figure 2.

Even though the values of X and r which make saving equal to investment

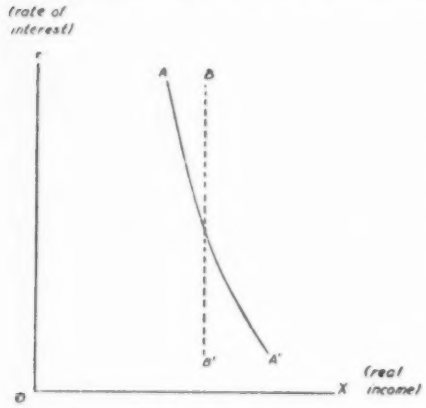

FIG. 1.—The line AA' represents various combinations of X (real income) and r (the rate of interest) which will fulfil the condition for equilibrium in the commodity market, assuming that $(\partial I^*/\partial r)(-\partial S^*/\partial r) < 0$, where I^* denotes real investment and S^* denotes real saving. The line BB' represents various combinations of X and r which fulfil the condition for equilibrium, assuming that $(\partial I^*/\partial r)(-\partial S^*/\partial r) = 0$. The special case referred to in the text is that in which $(\partial I^*/\partial r) = (\partial S^*/\partial r) = 0$.

are independent of the price level, the values of X and r which satisfy the conditions for equilibrium in *both* the money and the commodity markets are not independent of the level of prices. The points on the line ZZ' in Figure 3 are all eligible equilibrium positions in the sense that any such point will fulfil simultaneously the condition that real saving is equal to real investment and that the real demand for cash balances is equal to the real supply of cash balances. The line ZZ' represents the various combinations of the general level of prices (P) and real income (X) which will maintain equilibrium in both markets. In either of the two special cases—that in which saving and investment are both independent of the rate of interest or the rate of interest is independently determined in the "money market"—there is a single equilibrium level of real income which is independent of the general level of prices. In general, the "price elasticity" of the various combinations of P and X which satisfy the conditions for equilibrium in the money and commodity markets will depend upon the responsiveness of the saving and investment schedules to various rates of interest and the role which the rate of interest plays in the liquidity preference (demand for money) function.

The particular set of solutions described above for P and X which will ful-

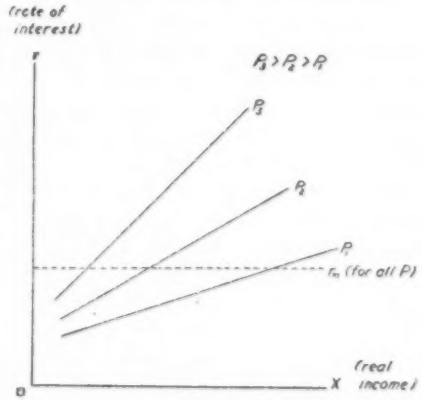

FIG. 2.—Each of the isolines (P_1, P_2, P_3) portrays the various combinations of X and r which will fulfil the condition that the quantity of money demanded is equal to the quantity of money supplied.

Since an increase in the real supply of cash balances can result from a fall in P or a rise in M, movements from one isoline to another can be considered as representing changes in either M or P, the demand for money remaining unchanged.

The special case in which there is a level of the interest rate at or below which individuals will be willing to hold all additional cash balances without additions to other assets is illustrated by the combinations of r and X lying upon the line r_m.

fil the conditions for equilibrium in the money and the commodity markets constitutes the distinguishing feature of the "Keynesian" theory. The nature of this

set of solutions follows from the assumptions with respect to the consumption, investment, and liquidity preference functions.

There is little disagreement between the theories under consideration relative

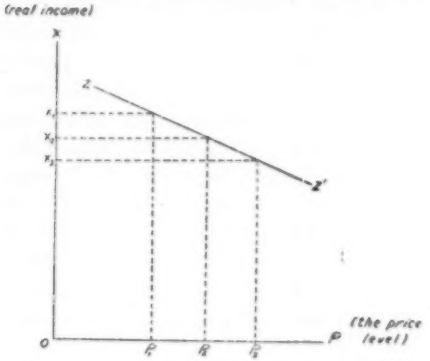

FIG. 3.—The line ZZ' represents the points of intersections of various isolines (r being a constant on each such line) fulfilling conditions for equilibrium in the money market, with the isolines fulfilling conditions for equilibrium in the commodity market.

to the combinations of the general level of prices and real output which will fulfil the condition for equilibrium in the "labor market"—assuming either a fixed money wage or perfectly flexible money wages. If money wages are perfectly flexible, there is a single equilibrium level of employment and a single equilibrium level of real output (X) corresponding to this level of employment (given the plant and equipment and the technology of the economy). This level of output is independent of the general level of prices, as is indicated by the line YY' in Figure 4.

With a fixed money wage, the equilibrium level of output will be directly related to the general level of prices up to the "full-employment" output and price level. At price levels above this "full-employment" level, the equilibrium level of output is the "full-employment" output. The various combinations of real output (X) and price level (P) which will fulfil the condition for equilibrium in the labor market, given various fixed money wage levels, are indicated by the family of W lines in Figure 4.

With perfectly flexible money wages, no combination of P and X which fulfils the condition for equilibrium in the "labor market" need be a combination which will also fulfil the condition for equilibrium in the money and commodity markets. Illustrated diagrammatically in Figure 5, the two lines—one of which

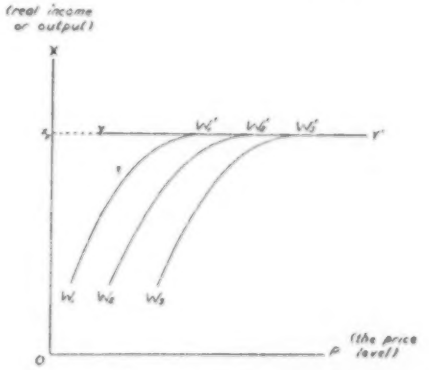

FIG. 4.—The line YY' represents the various combinations of P and X which fulfil the condition for equilibrium in the labor market with perfectly flexible money wages. The isoline $W_1W_1'Y'$ represents the various combinations of P and X which fulfil the condition for equilibrium in the labor market with a fixed money wage (say, W_1); $W_2W_2'Y'$ represents the various combinations of equilibrium values for P and X when the fixed money wage is higher (say W_2), etc.

X_f represents the "full employment" equilibrium level of output—the only level which is consistent with equilibrium in the labor market under conditions of perfectly flexible money wages.

contains the combinations of P and X fulfilling the condition for equilibrium in the labor market and the other of which represents the combinations of P and X fulfilling the condition for equilibrium in the money and commodity markets—

need not intersect. A solution for P and X consistent with the conditions for equilibrium in both sets of markets can be obtained by fixing the money wage

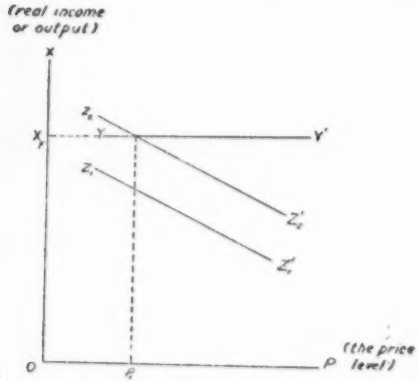

FIG. 5.—Z_1Z_1' represents the various combinations of P and X which fulfil the conditions for equilibrium in both the money and the commodity markets with given values for the exogenous variables. Z_2Z_2' represents these combinations with higher values for such variables as government expenditure or the autonomous component of the export surplus or private investment or lower values for tax collections.

Upon the line YY' lie the various combinations of P and X which fulfil the condition for equilibrium in the labor market. The intersection of a Z-curve with the YY'-curve determines the equilibrium level of prices. If Z_1Z_1' should represent the potential positions of equilibrium in the money and commodity markets, the entire system would be inconsistent (Z_1Z_1' does not intersect YY'), there being no eligible value for P which would satisfy the conditions for equilibrium in all three markets simultaneously.

(see Fig. 6). This might be termed the "Keynesian" solution. Lower levels of money wages may mean higher equilibrium levels of output (and hence employment), but no money wage level (zero and negative wage levels are not included as possibilities) need exist which will make the equilibrium level of output the "full-employment" level. In the two special cases noted above—that in which the interest rate does not enter into the aggregate demand for commodities (does not affect either real saving or real investment) or that in which the interest rate is fixed—only the equilibrium value for the general level of prices will be altered as a result of a change in the money wage.

Another important feature of this system is that, if changes in the quantity of money influence the equilibrium level of real income, the influence will be exerted via the rate of interest. Thus an increase in the quantity of money and a reduction in money wage rates operate in the same manner upon the equilibrium level of eal income, although they have opposite effects upon the equilibrium level of prices. Just as wage reductions will not increase the equilibrium level of employment if

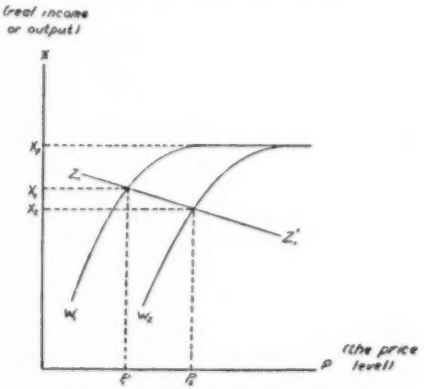

FIG. 6.—With a fixed money wage (say, W_1) the equilibrium level of prices will be P_1 and the equilibrium level of real income will be X_1. If the fixed money wage is higher (say, W_2), the equilibrium level of prices will be higher (P_2) and the equilibrium level of real output lower (X_2). If the combinations of P and X which will fulfil the conditions for equilibrium in the money and the commodity markets are those on Z_1Z_1', no admissible reduction in money wages is sufficient to make the full-employment level of output the equilibrium level.

the rate of interest is not a variable in aggregate real demand for commodities or if the rate of interest will not fall in response to an increase in the real supply of

cash balances, so will increases in the money supply be ineffective in increasing the equilibrium level of employment under these same conditions.[5]

The "Keynesian" theory is not a dynamic theory, since movements in the values of the relevant variables can take place only as a result of autonomous changes (shifts in the functions or in the values of the exogenous variables). Nevertheless, it is of interest to note the changes in the equilibrium levels of real income and prices in response to improvements in technology and increases in the amount of capital in the system.

With perfectly flexible money wages and no changes in the labor-supply function, the full-employment level of output—the only level which is consistent with equilibrium in the labor market—is rising as technology is improved and as additional amounts of capital are added through the investment process. However, the set of values of real output which fulfil the condition for equilibrium in the commodity and money markets need not change in a way which will include the new full-employment level. As has been indicated by Domar,[6] Harrod,[7] and others, there is nothing in the system which assures automatically that the steadily increasing full-employment level of income will always be achievable. Such factors as the rapid growth of population and the investment in the underdeveloped areas of the West have been suggested as important in the maintenance of full employment in the United States during much of the period prior to World War I.

Despite its usefulness in focusing attention upon important problems and the impetus which it has given to general equilibrium macrostatic analysis, the "Keynesian" theory has not proved entirely satisfactory in meeting certain empirical tests. In particular, it could not explain, except through a change in the structure of the system, the shift in the income-consumption relation which took place in the United States after the last war. Further, unless there is an upward shift in the consumption-income relation, the trend of the ratios of annual investment (and hence saving) to annual national income would be expected to be an upward one as per capita income increases. There appears to have been no upward trend for the United States during the last three-quarters of a century.

The inclusion of the real value of assets —physical assets and the net obligations of government[8]—held by consumers as a determinant of real consumption avoids the difficulties mentioned above. If consumption expenditure is considered as an increasing function of real income and the real value of assets, a stable marginal propensity to consume out of income and a constant flow of investment yield a continuously rising value for the level of real income which will fulfil the condition for equilibrium in the commodity and money markets.

For example, if assets enter linearly into the consumption function (investment being assumed as exogenously determined and the only other variable entering into consumption being income), the various eligible levels of P and X

[5] Franco Modigliani, "Liquidity Preference and the Theory of Interest and Money," *Econometrica*, XII (1944), 45–88.

[6] Evsey Domar, "Expansion and Employment," *American Economic Review*, XXXVII (1947), 34–55.

[7] R. F. Harrod, "An Essay in Dynamic Theory," *Economic Journal*, XLIX (1939), 14–33.

[8] For a description of the items which might be included in the category "net obligations of government held by private economic units" refer to Herbert Stein, "Price Flexibility and Full Employment: Comment," and Don Patinkin, "Price, Flexibility and Full Employment: Reply," *American Economic Review*, XXXIX (1949), 725–27.

which fulfil the conditions for equilibrium in both the money and the commodity markets can be represented by a family of rectangular hyperbolae, the combinations on any hyperbola representing eligible equilibrium positions with a given supply of "money" and a given real value of nonmonetary assets.[9] Growth in the real value of physical assets or increases in the quantity of money (without compensating reductions in other assets) would be represented by shifts from one isoline to another. Changes in the real value of monetary assets as a result of changes in the price level—the money value of such assets and the real value of nonmonetary assets assumed as constants—would be represented by movements along an isoline (see Fig. 7).

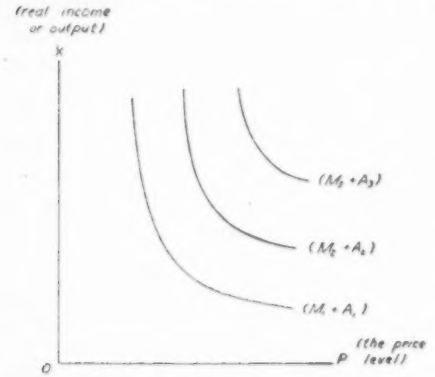

FIG. 7.—M_1, M_2, and M_3 represent various quantities of monetary assets and A_1, A_2, and A_3 various quantities of nonmonetary assets held by economic units. A rise in the quantity of money and/or in the real value of nonmonetary assets can be represented by a shift from a lower to a higher isoline, while a change in the price level can be represented by movement along an isoline.

In this system fiscal policies exert a sharper influence than in the Keynesian system—a government deficit financed by money issue affecting consumption via its effect upon disposable income *and* its effect upon the quantity of money. Monetary operations may also affect consumption directly through the change in the value of privately held government securities. And wage reductions may increase the equilibrium level of real income through the lower level of prices consistent with equilibrium in all three markets.

[9] Investment, government expenditure, and the marginal propensity to consume out of income are, of course, assumed to be constants.

II

The significance of these recent theoretical developments lies largely in their inclusion of variables that played no role (or an insignificant one) in the "Keynesian" system and which make possible full-employment equilibrium under a wider range of conditions than was possible according to the "Keynesian" theory. This means that, if achievement of the full-employment equilibrium level of output of goods and services is an objective of economic policy, there are ways of achieving this objective in addition to those thought possible in the "Keynesian" theory. We must choose from among a wider variety of possible policies. Criteria other than the equilibrium level of employment resulting from a given policy must be introduced in order to make this choice, since many policies yield the same solutions with respect to the level of employment.

A more detailed comparison than was made in Section I of the results of changes in some of the exogenous variables under the assumptions of the two theories will illustrate the point made above. Additional government expenditure for goods and services paid for by deficit financing (money printed by the Treasury or borrowed from the Federal Reserve banks, for example) will increase the equilibrium level of aggregate expenditure for goods

and services in both systems.[10] In the "Keynesian" system the increase results from the additional purchases made by the government together with the additional consumption expenditure generated by the increased income payments to individual consumers. If investment or consumption rises with a fall in the rate of interest, and liquidity preference is such that economic units will not hold the increased cash at the old interest rate, there is also a rise in the equilibrium level of expenditures for goods and services as a result of the increase in the quantity of money.

These same forces are in operation according to the more recent theory. But, in addition, the real value of assets held by private economic units is increased by the real value of the amount of the increase in the total quantity of money.[11] This also raises consumption expenditure out of a given income. Neglecting the effects upon the interest rate, a continuous deficit of a given size might be required to maintain a given equilibrium level of aggregate expenditure upon goods and services in the "Keynesian" model. In the other model which has been described, a continuous deficit consistently raises the equilibrium level of expenditure because of the increase in the real value of assets held by private economic units and the consequent increase in consumption expenditure. A continuous budget surplus will have the same kinds of effects as described above, the algebraic signs of the changes being reversed.

In both models a reduction in tax collections, government expenditure for goods and services and transfer payments remaining unchanged (or an increase in transfer payments, government expenditure for goods and services and tax collections remaining unchanged), will raise the equilibrium level of money expenditure upon goods and services through the effects upon disposable income. Again, in both systems, if the interest rate is a variable in the investment function and the increase in the budget deficit is financed as suggested above so that the increase in the quantity of money reduces the rate of interest, investment will rise, and there will be an additional upward impact upon the equilibrium level of money expenditure for goods and services. However, the effect of the increase in the quantity of money upon the real value of assets held by private economic units and the consequent increase in consumption expenditure is neglected in the "Keynesian" theory. Consequently, the cumulative increase in the quantity of money does not raise the equilibrium level of money expenditure with the passage of time in the "Keynesian" system as it does in the alternative system which has been described.

Unless a further modification is made in the alternative theory, there need be no major difference between the two theories regarding the effects of changes in the quantity of money (as a result of changes on asset account rather than as a consequence of such deficit financial changes on income account as were described above). In the "Keynesian" theory, monetary policy is a relatively impotent device unless consumption or investment is responsive to changes in the rate of interest and unless the liquidity

[10] It is assumed that private investment, the marginal propensity to consume out of income, and the levels of other variables and parameters specified as exogenous in both systems will be unaffected by the change in government expenditure.

[11] The real value of nonmonetary assets is assumed to remain unchanged, the prices of these assets changing proportionately to the change in the general level of prices.

preference schedule is such that a change in the quantity of money influences the rate of interest. It might be noted that the claims for monetary policy as a potent anti-inflationary and impotent anti-deflationary device, assuming the investment or consumption functions to contain the rate of interest as a variable, appear to rest upon a particular empirical base—unless the liquidity preference function is assumed to change in a specified fashion. This empirical base is that the liquidity preference function and initial quantity of money are such that an increase in the quantity of money will not reduce the interest rate, while a reduction in the quantity of money will raise it.[12]

In the alternative system, changes in the quantity of money as a result of changes on asset account can have effects in addition to those described above if (1) the marginal propensity to consume out of monetary assets is larger than the marginal propensity to consume out of nonmonetary assets or if (2) such a change in the quantity of money results in a revaluation of some kinds of assets. The first hypothesis involves a kind of "money illusion"—people believe that they are richer when their liquidity is higher even though their asset position is unchanged. The second case is reasonable if the rate of interest responds to a change in the quantity of money, a fall in the rate of interest resulting in a rise in the value of existing fixed-return securities.

In the "Keynesian" theory money wage reductions make possible a higher equilibrium level of real output of goods and services (if the initial equilibrium is below the full-employment level) because the lower equilibrium general price level increases the real value of a given quantity of money and lowers the rate of interest. A reduction in the money wage rate with a fixed quantity of money is equivalent to an increase in the money supply with a fixed money wage rate. In the event that the rate of interest is not a variable in aggregate real demand for goods and services or that an increase in the real supply of money does not lower the rate of interest, a money wage reduction has no effect upon the equilibrium output of goods and services. In the alternative theory, money wage reductions make possible a higher equilibrium level of real output of goods and services (if the initial equilibrium is below full employment) because the lower level of prices increases the real value of a given stock of monetary assets and thus influences consumption.

As can be inferred from the previous discussion, an increase in the supply of labor (due to a growing labor force, for example) or an improvement in technology that does not increase the real wage at which a given number of laborers will be employed by the same proportion as it increases the real output from the given number of workers yields different solutions in the two systems. Either change will increase "aggregate supply" of goods and services proportionately more than it increases "aggregate demand." According to the "Keynesian" theory, the new full-employment equilibrium level of output might be achievable (at any price level greater than zero) only with the aid of some fiscal action—an increase in government expenditure or a reduction in tax collections, for example. But, according to the alternative theory, the new full-employment or equilibrium level of output is automatically achievable (though not necessarily without a lag), since "aggregate demand" for goods and

[12] Modigliani, *op. cit.*, p. 59, Fig. 3.

services is always equal to "aggregate supply" at some price level.

Increased capital, with aggregate demand for goods and services and the labor force unchanged, results in reduced investment at a given rate of interest in both systems—assuming that investment decisions are based on the ratio of costs to returns and that the marginal physical productivity of capital is a decreasing function of the amount of capital employed with a given amount of labor. In the "Keynesian" theory aggregate supply of goods and services is increased and aggregate demand is diminished as capital accumulates, other things remaining unchanged. This, together with the peculiar nature of the aggregate demand function in the "Keynesian" system, provides the basis for the "stagnation thesis." Fiscal action may be required to achieve full-employment equilibrium at any price level greater than zero. While the full-employment equilibrium level of prices may be lower than the initial equilibrium level as capital accumulates in the alternative system, the full-employment level of output is still an equilibrium level of output.

III

The examples of different solutions for certain changes in exogenous variables in the two theories under discussion are by no means exhaustive. However, they illustrate the point that has been made—that the range of possible policies for achieving full employment or a given level of prices is expanded if the recent theory is accepted. In fact, except in cases in which the money wage is fixed too high (by trade-union action, for example), achievement of the full-employment level of output is not a problem in the more recent theory. Both the price and the income objectives are achievable in both systems as long as money wage rates are flexible, but only one may be achievable if money wage rates rise too rapidly.

The criteria for choosing from among the various policies should be the same regardless of which system is chosen as more accurate for forecasting the movement of relevant variables within the economy. These criteria are provided by the variables that enter "the social welfare function." A list of such variables might include the distribution of income, the vulnerability of certain variables in the economy to autonomous changes, and the real value of output produced by the fully employed labor force.

Assuming only that the weight assigned to each of these variables is greater than zero, changes in the level of government expenditure for goods and services is an inferior policy variable, since there is a single "best" level for this variable corresponding to each level of privately produced product. This is the level which maximizes national income—that level for which the value of the marginal product of resources employed by government is equal to the value of the marginal product of similar resources employed in the private sector of the economy. If changes in government expenditure were employed as a device for combating inflation or deflation—assuming the initial equilibrium position to contain the optimum division of resources between use in government and in the rest of the economy—a change to counter a deflationary disturbance could result in too much government expenditure for goods and services, while a change to offset an inflationary shock could result in too little expenditure.

Similarly, changes in the distribution of income can be designated as an inferior stabilization device if there is a

"best" distribution of income. For example, if more equality in the distribution of income meant a higher marginal propensity to consume out of income for the economy as a whole, a shift toward more equality would be an anti-deflationary move. While equalitarians might be willing to argue that increased equality was a desirable anti-deflationary step, one can wager that few would argue for increased inequality as an appropriate step toward offsetting inflationary forces.

This leaves changes in tax collections or transfer payments (the equivalent of negative taxes) as the most acceptable stabilization instruments in the "Keynesian" system, changes in the quantity of money being assumed as impotent. In the alternative system, changes in the quantity of money as well as in tax collections or transfer payments could achieve the desired equilibrium. In this case a decision must be made with respect to the desirable rate of interest and a combination of monetary and fiscal action taken which would achieve this rate as well as the desired price level. A similar guide for deciding which of these policy variables to alter would be necessary in policy based on the "Keynesian" theory, if the interest rate is a variable in aggregate real demand, although the combinations of changes on asset account and changes on income account which would be required in the two systems would differ.

Thus far no startling differences in policy implications between the two systems have been revealed. But one important distinction does exist. It lies in the differences in the kinds of automatic stabilizing action which can take place in the two systems. As has already been noted, the full-employment level of output is not automatically the equilibrium level of output at any eligible price level in the "Keynesian" system. If a stable price level were the objective of stabilization policy (let us assume flexible money wages so that the question of choosing some other objective can be waived), a rule could be formulated which would provide for automatic action in a specified direction. This rule might consist of provisions for a tax *rate* reduction when the price level fell below a specified value and for a tax *rate* increase whenever the price level rose above a specified value. But how strong the action should be cannot be formulated from the theory alone and must be judged on the basis of empirical estimates of the values of the coefficients in the system.

In the "Keynesian" system, "built-in-flexibility," such as is provided when tax collections and transfer payments vary automatically with the level of national income, does not assure maintenance of a given equilibrium level of money expenditure for goods and services—particularly if the interest rate is not a variable in aggregate demand or if the interest rate does not change in response to changes in the quantity of money. Such "built-in-flexibility" merely changes the relationship between national income and disposable income, and hence, with a given marginal propensity to spend out of disposable income, the relationship between expenditure and national income.[13] In the alternative system, however, such "built-in-flexibility" can return the level of aggregate expenditure to its initial equilibrium value even though a change in an exogenous variable such as investment or the export surplus takes place.[14]

[13] See, e.g., O. H. Brownlee, "The C.E.D. on Federal Tax Reform," *Journal of Political Economy*, LVI (1948), 166–72, and R. A. Musgrave and M. H. Miller, "Built-in-Flexibility," *American Economic Review*, XXXVIII (1948), 122–27.

[14] Friedman, *op. cit.*

As has been indicated previously, a budget deficit or surplus shifts the relationship between consumption expenditure and income through its effects upon the value of assets. Thus, a fixed tax rate and transfer payment schedule provides automatically for both the direction and the intensity of fiscal action in response to a given change in the exogenous variables. The expenditure (or income) level at which the budget exerts neither net inflationary nor deflationary pressure is the equilibrium level. In order for the price level to be stable, this level has to be raised as technology improves and capital accumulates; or the levels of tax collections and transfer payments have to be related directly to the price level rather than to aggregate money expenditure—the product of price and real output.

IV

In my opinion, the important policy problem which has been raised by the alternative theory is not whether wage flexibility should be employed as a means of achieving full employment or what the appropriate fiscal or monetary instruments are for economic stabilization. Policy proposals with a stable general price level as the objective could not propose wage flexibility as the only requisite policy. The important policy problem is whether action should be discretionary or automatic.

Rationales (derived from the two theories) for the preferences of the adherents to the "Keynesian" theory for discretionary action and the adherents to the alternative theory for built-in-flexibility have already been provided in the previous analysis. Cursory examination of the evidence suggests that the alternative theory is superior to the "Keynesian" theory, some pieces of this evidence having been introduced in the previous sections. This alone, however, does not establish a firm case against discretionary action. The size of the marginal propensity to consume out of assets is one factor determining how rapidly the system damps toward the equilibrium as the result of a given disturbance. If this coefficient is very small, losses—as measured by the difference between the full-employment level of output with a stable price level and the realized output—might be large, depending upon the magnitude of the disturbance. However, there would also be losses from discretionary action. These arise from changing the policy variable too slowly in the right direction (the loss here, if only a static model is employed, could never be as large as with automatic stabilization, providing the automatic stabilizers were also functioning) and from changing the policy variable in the wrong direction. It is the second type of loss that looms large in the eyes of those opposing discretionary action, largely because of the relatively poor record of forecasts of the movement of economic magnitudes.

Two issues are involved in appraising this argument: (1) whether forecasts could be improved and (2) whether, with forecasts as bad as those which have been made with the best techniques, discretionary action might not be better than reliance on automatic devices alone. The first issue should be waived, since a sufficiently positive answer to it is always a justification for discretionary action. The second one cannot be evaluated at the present time. To evaluate it requires a record of forecasts, proposed action, and expected results which is not available and may not be attainable. In particular, there may always be disagreement regarding expected results, even though there is agreement on the forecast and

the action. If such an evaluation cannot be made, it seems unlikely that those who favor discretionary action will be able to convince those against it, and vice versa.

An issue which cannot be settled by the alternative theory, if it is accepted, is the optimum degree of flexibility to build into the system. In the purely static theory where there is no theory of change in the exogenous variables, there cannot be too much built-in-flexibility. However, as Friedman has suggested, in a dynamic system too much flexibility can be built into the system—that is, the amplitude of a variable (such as the level of prices) may be greater as a result of the built-in-flexibility than would be the case if there were no such built-in-flexibility.[15] It appears that, the lower the correlation between the disturbance and the automatic change in the policy variable, the less the built-in-flexibility that is desirable.

[15] Milton Friedman, "Lerner on the Economics of Control," *Journal of Political Economy*, LV (1947), 405–17, n. 12 (pp. 414–15). Friedman has elaborated this idea in conversation with the writer.

COMMODITY AND INCOME TAXATION IN THE SOVIET UNION[1]

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I

THE principal function of taxation in the Soviet Union is to prevent inflation by absorbing excess consumer purchasing power. The problem assumes very large proportions owing to the high level of investment and other government expenditures which has prevailed in the U.S.S.R. since the inception of the Five-Year plans. The purpose of this paper is to examine the main approaches open to the Soviet authorities to solve the inflation problem. Theoretically, two general methods of approach may be distinguished:[2] (*a*) to levy an income tax or other direct tax on the population and (*b*) to levy a commodity tax.[3]

In choosing the best method (or combination) for handling this problem, the following are some of the more important factors which, in theory, must be taken into consideration:[4] (*a*) the negative impact of taxation on work incentives; (*b*) planner autonomy and consumer welfare; (*c*) differential rent; and (*d*) class policy.[5]

II

One of the basic considerations in a choice between income and commodity taxation would be their relative impacts

[1] The assistance of the Russian Research Center, Harvard University, in which I am a graduate student fellow, is gratefully acknowledged. This report has benefited from the critical comments of Professor Alexander Gerschenkron, Mr. Alexander Erlich, and Mr. Gregory Grossman.

[2] A third possible approach could be to vary wages and the nonwage costs of production inversely to each other (e.g., to offset a projected increase in net investment by lowering wages). This method could be considered a plausible alternative if the Soviets kept two sets of accounts: one for costs and one for payments to the factors of production. However, this is not the case—only one set of accounts is maintained. Under this condition such a policy would, every time the rate of investment changed, (1) necessitate a change in the relationship between the value of labor and other components of the productive process and (2) upset fortuitously the relative values of all other commodities (both producer and consumer goods) to the extent that the proportion of wage costs to total costs differs from product to product and from industry to industry. The planner, attempting to make rational economic decisions based on the prices of the factors of production, would, in theory, have to reject the foregoing procedure for solving the inflation problem, since factor prices would not reflect scarcity relative to demand.

[3] Commodity tax will be defined here to include not only positive taxes and subsidies (which are in effect negative taxes) but also profits and losses of enterprises or selling organizations. Since, with minor exceptions, Soviet industry is owned by the state, and since the bulk of marketed agricultural commodities are sold to consumers by state organizations, the distinction between profits and taxes, and losses and subsidies, is no more than a matter of accounting with respect to the consumer, although in certain other respects it has additional significance. For the purposes of this paper, therefore, any deviation of price from costs will be considered a commodity tax. This definition of commodity tax, applied to actual Soviet practice, would include the turnover tax, deductions from profits, retained profits of enterprises, and subsidies to cover operating losses.

[4] Soviet economists do not mention all these factors explicitly in their writings. It is my belief, however, that most of the arguments in this paper are recognized by them at least implicitly and to some extent are considered in the determination of tax policies.

[5] I refer here to the Soviet use of taxation to discriminate against different social and occupational groups in the population.

on work incentives.[6] It is generally accepted that both direct and indirect taxes affect incentives.[7] The reason is that taxes are usually levied on the type of income derived from work rather than on income from leisure; hence, when income derived from work is taxed, a substitution between work and leisure may occur. Given this substitution effect and the reasonable assumption that the Soviet authorities would want to maximize work incentives, the choice between taxes will depend on whether (*a*) the "elasticity of demand for income in terms of effort"[8] is greater or less than unity and (*b*) there is a difference in effect between income and commodity taxes in this respect.

Economists seem to agree that the elasticity of effort demand for income is usually greater than unity—that the imposition of a tax will have a negative impact on work incentives. Although this has never received satisfactory empirical verification, there is some evidence that it is valid, particularly at high levels of taxation. A significant case in point is postwar Great Britain, where, it is generally agreed, high rates of taxation, especially high marginal rates, have been an important factor in increased absenteeism and the reduced incentive to work overtime.[9] Even if it were true that people tended to work harder as they were taxed more, it would appear reasonable to expect this tendency to reach an upper limit as the length of the workday increased and/or the marginal wage after tax decreased.[10] The tax burden is so great in the Soviet Union that, even if the elasticity of effort demand for income would have been less than one for a lower tax burden, the upper limit may well have been reached at current levels of taxation.

If it is accepted that taxes in the Soviet Union adversely affect work incentives,[11] then it follows that the preferable type of tax from an incentive point of view would be the one which affects incentives least adversely. Since both types of taxes theoretically can be constructed so as to have an equivalent degree of progression, the problem boils down to the old question of the "money illusion"—is the wage-earner more sensitive to changes in money wages (take-home pay) than to changes in prices? If he is more sensitive to changes in money wages, a commodity tax is to be preferred; if the "money illusion" does not exist, the wage-earner is indifferent incentivewise to the type of tax. Although

[6] This is particularly important in the Soviet Union, where, as Professor Dobb points out, almost all income is work income (see M. Dobb, *Soviet Economic Development since 1917* [London, 1948], p. 365).

[7] Cf. A. Henderson, "The Case for Indirect Taxation," *Economic Journal*, LVIII (December, 1948), 538–53.

[8] See L. Robbins, "On the Elasticity of Demand for Income in Terms of Effort," in *Readings in the Theory of Income Distribution*, ed. W. F. Fellner and F. F. Haley (Philadelphia, 1946), pp. 237–45 (this article was originally published in *Economica*, 1930). If the elasticity is greater than one, a taxed person will work harder (in order to prevent income from declining); if less than one, the person will work less hard.

[9] For a good discussion of the British situation see S. P. Chambers, "Taxation and Incentives," *Lloyds Bank Review*, No. 8 (new ser.; April, 1948), pp. 1–12. It should be noted that other factors, such as the large amounts of social security and, in many industries, a fear of unemployment as a result of getting too much work done, inherited from the depressed thirties, have served to reduce incentives.

[10] Assuming a progressive tax system.

[11] If the contrary were true, then the combination of the very high level of taxation and the average-length workday in the Soviet Union should have resulted in the development of substantial pent-up work incentives. The numerous devices which have been introduced to maintain incentives are evidence to the contrary—although incentives have, of course, been blunted by other factors, such as the accumulation of large holdings of excess purchasing power.

some economists may question the importance or extent of the "illusion," few would deny that it exists.[12] It should be expected that the Soviet tax authorities will attempt to maximize the "illusion" in so far as this does not conflict with other tax objectives.[13] This appears to be one of the principal reasons for the dominance of the commodity tax and the relative neglect of the income tax in the Soviet budget system.[14]

III

In comparison with the income tax, the commodity tax has other advantages for the planners. Soviet economists stress the importance of the commodity tax as an instrument of price policy.[15] The real meaning of this statement is revealed by considering the significance of consumer sovereignty in the Soviet Union and the relative impacts on consumer sovereignty of the commodity and income taxes. Consumer sovereignty may be defined as the power of the consumers to determine what is to be produced—hence, the power to determine the allocation of productive resources into different industries.[16] This is usually accomplished through the market mechanism, although other ways in which consumers could be allowed to exert their influence on patterns of production are conceivable. Given a market for consumer goods, consumer sovereignty implies consumer choice; consumer choice, however, does not imply sovereignty. Consumer choice means only that the distribution of a group of commodities is effected through the market; the quantities offered and the prices set may be determined by the planners completely independently of any consumer pressure.[17] Before proceeding further, it should be stressed that the discussion which follows relates almost entirely to the sphere of consumer goods and, of course, to the factors of production needed to produce them. Decisions in the Soviet Union as to the rate of investment and to the specific nature of much of the investment (e.g., investment designed for armament production) are decisions over which the consumer has no control.

In a country such as the Soviet Union, engaged in extensive planning, there is considerable advantage in adopting, as fully as possible, consumer choice, combined with a minimum of consumer sovereignty. The adoption of consumer choice enables the Soviet authorities to

[12] For discussion see J. Tobin, "Money Wage Rates and Employment," in *The New Economics*, ed. S. Harris (New York, 1947), pp. 579–81.

[13] Apparently for purposes of fostering the "money illusion" as well as for obvious social and political reasons, Soviet economists have failed to mention, since the controversies of the late 1920's and early 1930's, the fact that commodity taxes involve a reduction of real wages. Instead it is stated that the commodity taxes are accumulation (savings) of socialized industry.

[14] Although the rate of income tax has always been small in the U.S.S.R., at least for the bulk of the workers, the rise which would be necessary to compensate for, say, a halving of the commodity tax would be substantial and, given the low level of income and saving, might have a serious impact on incentives. It should also be noted that the progression of the income tax has been relatively mild. This is probably due to two factors: (1) recognition of the fact that high marginal rates of taxation are especially bad for incentives and (2) any large amount of progression would involve deviation from the guiding economic and moral principle governing wages, viz., "to each according to his labor."

[15] See, e.g., Sh. Turetskii, "Puti Planirovaniia Tsen" ("Methods of Planning Prices"), *Planovoe Khoziaistvo* ("Planned Economy"), No. 3 (1936), pp. 113–37.

[16] Theoretically, perfect consumer sovereignty should exist in a free-market, free-enterprise economy. Actually limitations result from the existence of monopoly, "lumpiness" of investment, etc.

[17] For discussion see O. Lange and F. Taylor, *On the Economic Theory of Socialism* (Minneapolis, 1938), pp. 94–96.

avoid the high cost of direct distribution of consumer goods by rationing and tends to maximize consumer satisfaction from a given basket of consumer goods. Consumer sovereignty implies an economic power other than the over-all planning board and one not necessarily in agreement with the board. Given a substantial degree of sovereignty over the structure of the consumer bill of goods, the consumers conceivably could hamper seriously the autonomy of the planning board. This factor increases in importance with the degree of complementarity of productive factors, size and specificity of capital equipment, and scarcity of productive factors.

For purposes of illustration, let us make the extreme assumption that the income tax is the only fiscal instrument available to the Soviet planners and that no form of commodity tax can be used, recalling that commodity tax has been defined as any deviation of price from costs including the profits and losses of state enterprises.[18] Then if the distribution of consumer goods were accomplished through the market, a reasonable degree of consumer sovereignty would prevail. The planners in this case could produce the bill of goods in accordance with their own preference system—but they would have to place the goods on the market at cost[19] and would not be able to adjust prices for purposes of equating supply and demand if this should be required because of shifts in relative demand or for other reasons. Hence, under our assumption, the price of goods in excess supply could not be lowered to clear the market, nor could the price of goods in short supply be raised to prevent inequitable distribution and/or the need for rationing. The entire burden of adjustment necessarily would have to be borne physically—by shifts in the allocation of the factors of production. If the adjustment were made, the real income of the nation would be reduced by the cost of making the adjustment; if the adjustment were not made, resources would continue to be wasted in the production of undesirable commodities.

The use by the state of nonproportional or discriminatory commodity taxation considerably decreases the extent of consumer sovereignty, since the state can use price adjustments to equate supply and demand without necessarily responding to the price changes by subsequent shifts in resources.[20] Some sovereignty is still retained by the consumer, however. Conceivably the planners might offer for sale a bill of goods which would not be purchased entirely at any price or only at prices so low that idle balances would remain in the hands of consumers after the market had been cleared. In other words, consumers might decide not to spend all their income in the current period in anticipation of a more desirable selection in a later period. In this event the planners might be forced to alter their planned pattern of resource allocation. Nevertheless, the

[18] See n. 3 above. Also it should be noted that if the Soviet policy should be to carry production to the point at which marginal cost and average revenue are equal or proportional, then enterprises will undoubtedly have some profits or losses in the form of intramarginal rent.

[19] It does not matter here whether price equals average or marginal cost; the significant assumption is that the state cannot alter price to equate supply and demand once a rule of price formation has been established.

[20] Proportional commodity taxation can be shown to have the same effect as an income tax with respect to the problem under discussion (Henderson, *op. cit.*, pp. 539–42). The use of discriminatory commodity taxation implies, of course, that the state is no longer constrained to follow the rule that price and cost (marginal or average) must be equated.

ability to equate supply and demand by price adjustment (commodity tax) as well as by adjustments of output allows the planners considerably more freedom from consumer interference than would be possible if the income tax were the sole available fiscal instrument.

In discussing above the superiority, for the planners, of discriminatory commodity taxation over income taxation, I have abstracted from the problem of consumer welfare. It is generally accepted that consumer welfare is reduced less by income taxation than by discriminatory commodity taxation, since the former does not affect the "true" price ratios, whereas the latter does.[21] The planners are faced therefore with the goal, not of maximizing autonomy from consumer influence in planning, but of choosing (or compromising) between this goal and the goal of achieving as high a level of consumer satisfaction as is consistent with the level of investment and other government expenditures to be undertaken.

In the short run, the state would probably emphasize the first alternative because of the high cost of changing the composition of output over short periods of time. Prices (taxes) would be set at levels just high enough to equalize exactly the demand for and supply of each commodity. To do otherwise would involve waste of commodities and/or inequity in distribution and/or rationing. If this objective were achieved, aggregate demand and supply would be equated; and total tax revenue would be equal, under simplifying assumptions, to consumer income minus the cost of goods offered for sale—the principal condition for offsetting inflationary pressure

In the long run, however, a rational production program for consumer goods would have to take more fully into consideration the desires of consumers. In theory the state should attempt to carry the production of each commodity up to the point at which marginal cost and average revenue are equal (and determine price).[22] Lerner and others have demonstrated that the application of this policy will lead to the best allocation of resources and tend to maximize consumer welfare.[23] Following this price policy, the state would collect a rent (or tax or profit) due to the differences between marginal and average costs.[24] However, given the high level of investment and other government expenditures in the Soviet Union, it is extremely unlikely that the collection of this rent would be sufficient for the achievement of monetary stability. An additional tax would be necessary for this purpose. If the goal were to minimize the reduction of consumer welfare, the appropriate policy would be, as we have seen, to levy either an income tax or a proportional commodity tax. Initially, of course, neither tax would equalize the demand for and supply of all commodities. The levying of the tax would have a negative income effect on consumers, and, to the extent that the income elasticity of demand for the separate commodities differed, the

[21] *Ibid.* Also this assumes that existing price ratios are the "true" ones.

[22] The private monopolist is interested in maximizing profit, not consumer welfare. This is accomplished by carrying production to the point at which marginal cost and marginal revenue intersect. The Soviet state, as a monopolist, differs from the private monopolist in this and in still another important respect: the state must approach the pricing problem from a general equilibrium viewpoint, since the tax collected in each industry affects the receipts from other industries; the private monopolist takes his demand curve as "given."

[23] A. P. Lerner, *Economics of Control* (New York, 1946), chap. ix.

[24] The rent could be negative, i.e., a subsidy, in cases where average costs are greater than marginal costs.

shift in the separate demand schedules would not be proportional. In succeeding periods, further adjustments would be necessary. If a proportional commodity tax is levied, then in the final equilibrium situation marginal cost and average revenue would be in the same ratio for all enterprises;[25] or the tax could be conceived of as an additional cost which would raise the average and marginal cost curves of all firms[26] proportionately, production of each commodity being carried to the point at which the new marginal cost is equal to average revenue.

A practical policy fusing the short- and long-run approaches might be to equate the supply of and demand for each commodity in the very short run by varying price (commodity tax), but in the longer run attempting to increase production of those commodities with the highest rates of tax and reduce production of those commodities with the lowest.[27] This would tend to equalize the rates of tax on all commodities. Statements by Soviet economists indicate that the planners do attempt to achieve the short-run policy indicated above. I have not seen any writings, however, indicating that Soviet economists are aware of, or interested in, the principle of carrying production to the point at which marginal cost is proportional to price or, related to this, in the superiority from the point of view of consumer welfare of income taxation or proportional commodity taxation over discriminatory commodity taxation. As far as empirical evidence is concerned, the rates of turnover tax, which constitute the largest part of the Soviet commodity tax, are relatively heterogeneous. This in itself is not sufficient evidence that Soviet deviation from proportionality is theoretical in origin. It is not simple to establish the proper prices (taxes) or to determine where the need for investment is greatest; an extensive knowledge is required of the shape of the nation's cost schedules, price and income elasticities of the demand schedules for all commodities, inventories, factor substitutability, and many other things. Furthermore, the state undoubtedly sets many prices to conform to moral, health, social, and other noneconomic policy considerations. For example, it might wish to discourage vodka consumption, levying a tax on vodka which is much higher than the taxes on other commodities; a reverse policy might be followed with respect to potatoes.[28] Finally, the nonproportional commodity tax may simply reflect differential rent (see Sec. IV).

IV

For rational pricing of the factors of production, it is essential that natural resources and producer goods receive a valuation other than the sum of the costs of the components of production, to take into account scarcity relative to demand, i.e., differential rent.[29] If, for

[25] It has been demonstrated that a better welfare position is achieved by equality than by proportionality of marginal costs and average revenue (cf. Lerner, *op. cit.*, pp. 100–105).

[26] This would coincide roughly with the Soviet approach, which is to consider investment and other government expenditure as social cost which is borne mainly by "accumulation of socialist industry"—in our terminology, by markup over cost.

[27] Dobb suggests that, with qualifications, this approach is used by the Soviets (*op. cit.*, pp. 373–74).

[28] *Ibid.* Dobb gives other examples.

[29] "The function of rent payments by state and co-operative enterprises is above all to assist the economic organs (especially enterprises in extractive industries) to conserve the natural wealth of the country . . . differential rent . . . enables the best use of the extensive natural resources of the U.S.S.R." (see A. Gordin, "Formy i Metody Organizatsii Sotsialisticheskikh Nakoplenii" ["Forms and Methods of Organization of Socialist Accumulation"], *Sovetskie Finansy* ["Soviet Finance"], No. 6 [1946],

example, the respective costs of extracting a ton of scarce high-grade coal and of lignite should be equal, it would obviously be incorrect to price both items on a straight cost-of-production basis. This problem can be handled either by rent payment to the state or by commodity taxation; for practical purposes the results of these two methods are equivalent.[30] I do not know the relative extents to which these alternative methods are used. However, the fact that a differentiated turnover tax was, until recently, levied extensively on nonconsumer goods suggests that this role has been served to some extent by the commodity tax. Obviously this function cannot be served by an income tax.

It should be noted that to the extent that the commodity tax on producer goods and raw materials does not accurately reflect scarcity relative to demand, an element of inconsistency is introduced into the factor pricing scheme, the seriousness of which will depend on considerations such as the degree of integration in industry, relative percentages of "arbitrary" markup between firms and products, etc.

V

An attempt has been made to deduce the theoretical and practical advantages to Soviet planners of primary reliance on commodity taxation. In fact, since 1930 commodity taxes have provided the bulk of the budget revenue. With the exception of the war years, the receipts from various kinds of income taxes have never provided as much as 10 per cent of the total tax revenue and an even smaller percentage of revenue from all sources. In the decade of the 1930's, direct obligatory collections from the population were less than 8 per cent of the total of commodity taxes. The question may be raised as to why the Soviet authorities do not discontinue the income tax entirely.

The income tax serves several functions. First, the income tax has been an important instrument of class policy, i.e., it can be used to discriminate against some, and in favor of other, classes in the population. For such a purpose the commodity tax is much too blunt. For example, it is well known that the income taxes of most nations are uniquely related to the level of personal income (aside from the number of dependents). The Soviets, on the other hand, divide the taxpayers into groups based on type of occupation and of income, and a different rate applies to each group at identical levels of income. This policy was particularly important in the late 1920's and early 1930's, when the state had committed itself to the elimination of the private entrepreneur in the city and of the kulak in the rural areas. In 1934 the city population was divided into the following categories: (1) workers and salaried employees; co-operative artisans and domestic workers; (2) writers and artists; (3) nonco-operative artisans without hired labor; private-practice doctors; (4) persons working for themselves (excluding doctors); houseowners; persons receiving income from sale of dairy or garden products; (5) nonco-operative artisans or domestic workers

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pp. 7–8). It is interesting to note that, if differential rent were not included in price, total cost would be identical with, to use Marxian terminology, the sum of living labor and congealed labor. It should also be noted that in the case of natural resources this is equivalent to taking depletion into account.

[30] "To the extent that differential rent does not receive independent expression in all branches of the national economy . . . rent is paid in the form of the turnover tax" (see A. Gordin, "Ekonomicheskoe Znachenie Sistemy Oblozheniia po Oborotu" ["Economic Significance of the System of Turnover Taxes"], *Sovetskie Finansy*, No. 8 [1947], p. 12).

with one or two hired employees; owners of certain types of machinery; and (6) petty businessmen; artisans and domestic workers with more than two hired employees; persons living on monetary capital; religious workers.[31] Some sample rates of income tax for these groups in 1934 are given in Table 1.

TABLE 1

Yearly Income (Rubles)	Average Rates of Tax (Per Cent)*					
	1	2	3	4	5	6
1,000.....	0.76	0.90	2.50	3.75	4.00	4.80
5,000.....	2.79	2.80	9.32	13.98	15.50	19.90
10,000.....	3.50	8.75	18.36	27.39	30.70	35.85
20,000.....	3.50	19.98	29.38	44.00	49.40	54.58

* The marginal tax rates were, of course, much higher. It should be noted that Table 1 is incomplete and contains the rates for only a sample of the many different levels of income which are taxed at different rates.

The city population also had to pay the so-called *kultzhilsbor*,[32] and an excess profits tax which added 50 per cent to the income tax was paid by category 6. The end result of adding these three taxes was that category 1 paid a maximum average tax of 6 per cent on yearly income over 7,200 rubles; category 3 paid about 18 per cent on 7,200 rubles and a maximum of 34.75 per cent on an income of 20,000 rubles; and category 6 paid about 60 per cent on an income of 7,200 rubles, a rate of 103.54 per cent on 20,000 rubles,[33] and a maximum of 116.67 per cent on 30,000 rubles.[34] It is perfectly clear that this system of taxation was designed to favor the working classes, destroy rentiers and individuals employing labor, and limit severely other economic groups.[35] Although the Soviets still maintain "class" income-tax schedules, the current policy appears to be somewhat less differentiated.[36]

Taxation of the agricultural population formerly was differentiated according to three main categories: members of the collective farms, private farmers, and the richer peasants or kulaks.[37] The kulaks were taxed on a scale similar to that of the capitalist elements in the city until the elimination of the kulaks as a class in the mid-thirties; the private farmer still exists and at present pays a 100 per cent higher rate of tax on income from most sources than the collective farmer does.

Furthermore, the income tax is a traditional form of taxation in the Soviet Union, and little would be gained by discontinuing it. This is especially true since the costs of administration are not very high in view of the Soviet practice of deducting taxes from wages at the source.[38] Moreover, the enormity of the Soviet fiscal task makes it imperative to tap every source of revenue. This factor undoubtedly explains the energy devoted to bond drives and savings campaigns in the Soviet Union. In fact, during the decade of the 1930's more revenue was

[31] K. Ianbukhtin, *Nalogi v Usloviiakh Kapitalizma i v Sovetskom Khoziaistve* ("Taxes under Capitalism and in the Soviet Economy") (Moscow, 1934), pp. 23–24.

[32] A tax, the receipts of which are used for cultural and housing construction.

[33] A capital levy. [34] A capital levy.

[35] It should be noted that the city population was also subject to a craft tax in this period, which was levied on the turnover of both goods and services of private enterprises and crafts. This tax played an important role in limiting the operations of private capital.

[36] For postwar rates see G. L. Mar'iakhin, *Nalogi i Sbory s Naseleniia i Kolkhozov* ("Taxes and Collections from the Population and Collective Farms") (Moscow, 1946), chap. vi.

[37] Variously defined as farmers employing help, speculators, and usurers. The general implication is that the term includes those living on unearned income or on income from unproductive labor.

[38] The turnover tax is probably even cheaper to administrate.

collected from these sources than from direct taxation of the population. During the wartime period the production of consumer goods dropped considerably, causing receipts from commodity taxation to decline seriously. For this and other reasons, much greater reliance was placed on income taxation, and several new types of direct taxes were introduced.[39] In 1943 taxes on income brought in roughly three-tenths of the receipts from commodity taxation in comparison with the prewar ratio of less than one-tenth.

A final advantage of the income tax relative to the commodity tax is the administrative ease with which the former can be adapted to make allowance for dependents. A peculiarity of the present Soviet income tax, however, is that it is not adapted completely for this purpose; instead, a separate direct tax is levied,[40] and subsidies, which vary with the number of children, are paid to mothers.[41]

[39] Cf. A. K. Suchkov, *Dokhody Gosudarstvennogo Biudzheta SSSR* ("Budget Income of the U.S.S.R.") (Moscow, 1945), chap. xiii.

[40] Under the present income tax law all families with four or more dependents are entitled to a 30 per cent reduction in tax payment (cf. Mar'iakhin, *op. cit.*, p. 59). Further graduation is provided by the separate tax on bachelors and families with three or less children.

[41] This type of subsidy is, in effect, a negative income tax.

A METHOD FOR DRAWING MARGINAL CURVES

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I SHALL describe a method for locating points on the marginal curve when the average curve is given which seems superior to the method commonly used on two counts. First, when the average curve is not linear, the method which I suggest is geometrically simpler. Points on the marginal curve may be easily approximated at sight without constructing lines. This is helpful when precision is not needed, as in drawing illustrative diagrams on the blackboard. Second, the method directly transcribes an easy verbal explanation of the meaning of those marginal curves which are drawn to demand or supply curves.

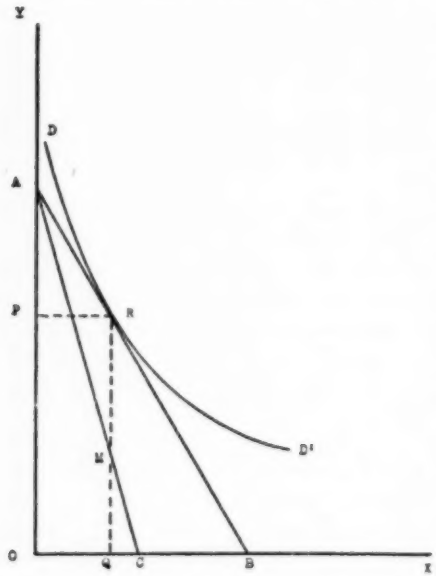

FIG. 1

The usual practice, of course, is that followed by Joan Robinson of drawing a line tangent to the average curve at the quantity for which it is desired to locate a point on the marginal curve. Then from the intercept of the tangent with the price axis a second line is drawn which has arithmetically twice the slope of the tangent and therefore bisects any perpendicular to the price axis drawn from a point of the tangent line. Where this second line cuts the perpendicular to the quantity axis drawn from the point of tangency, it passes through the desired point on the marginal curve. The construction is shown in Figure 1, where DD' is a demand curve, AB is the tangent, AC is the auxiliary line, and M is a point of the marginal curve. The proof that the point M is the correct point is given in two steps. It is shown that AC is the marginal curve to AB by proving that the area beneath it at any quantity is equal to this quantity times the price it would bring as shown on the demand curve. For example, the area $AMQO$ is equal to the area $PRQO$. And then it is shown that, when two average curves are tangent, their marginal curves pass through the same point directly beneath the point of tangency (that is, at the same quantity).

This method is not very obvious intuitively, and it is not easily used without actually drawing the relevant lines. Furthermore, when we apply it to the upward sloping branches of average cost curves, the intercept A lies below the origin, and it is rather difficult to make a cost curve plausible to the student which begins with negative costs, so that it becomes a little awkward to speak of AB as a cost curve which at point R merges with the curve under study. A similar difficulty arises in the case of upward-sloping supply curves.

My proposal is to draw a straight line at P of equal slope with the tangent. This line

also passes through M. My construction is illustrated in Figure 2 for the upward branch of a cost curve. PB has the slope of the average curve at R. The point M is the point on the marginal curve at the quantity Q. It is the intercept, of course, of PB with

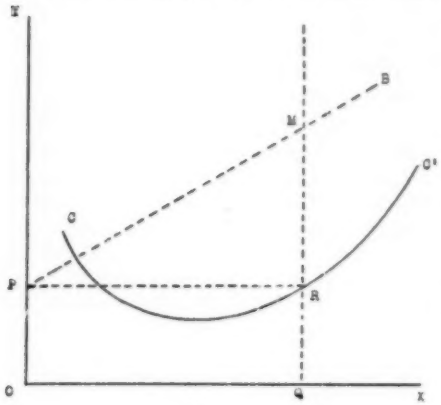

FIG. 2

the extension of the perpendicular from R to the quantity axis. I think this method is quite helpful in the art of drawing freehand illustrations of marginal curves during the course of classroom instruction. A few points of the curve can be located with fair accuracy without any auxiliary lines, since one merely proceeds over from R to the vertical axis and runs up at the slope of the average curve at R until directly above R and then records his estimate with a dot.

Moreover, this method is related to a simple explanation of the marginal concept, at least in the case of demand and supply curves, and may, therefore, be of pedagogical value. One way of introducing marginal revenue to the student is to give him this equation:

Marginal revenue = Price
− (fall in price × former output).

For this obviously gives the net change in revenue, since the sale of the last unit in itself raises revenue by the price obtained; but, if price must be reduced to make this sale, to that extent less is forthcoming from the previous sales, and the loss clearly equals former output times this price concession. By a precisely similar argument the marginal cost of a productive service may be equated to price, plus the rise in price times the former quantity purchased. The same reasoning could be applied to average cost curves (of output), but in this case it does not aid intuitive understanding.

Let us apply the reasoning to the supply curve of a productive service drawn in Figure 3. The formula is: Marginal cost = Price + (rise in price × former quantity purchased). RQ or PO is equal to price. Since price is rising, marginal cost will be higher. Price is rising at the rate shown by the slope of the supply curve. This rate of price rise must be multiplied by the entire quantity previously sold, which is Q for an infinitesimal change ($Q - 1$ if the output must vary by a unit of significant size). Therefore, we add to OP or RQ the result of this rate of price rise taken over the distance PR or OQ, which equals previous out-

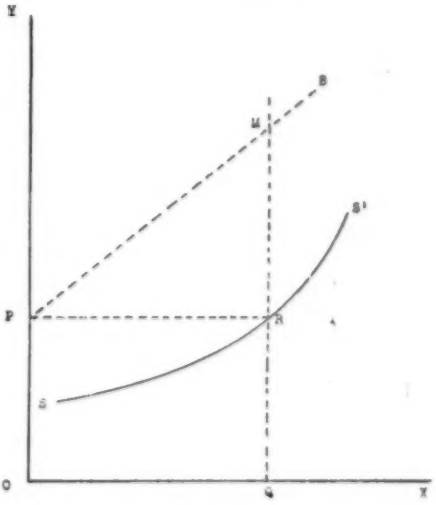

FIG. 3

put. The treatment of other curves and of the discontinuous case should be obvious and will not be sketched.

It may be true that many instructors already use this construction, but I have not encountered it.

INCOME, ABILITY, AND SIZE OF FAMILY IN THE UNITED STATES

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I

A CONVICTION that is widely shared among economists, sociologists, and educated laymen is that there is a pronounced inverse relationship between income and family size. Social scientists are convinced that there has been at least a temporary tendency for the less able people to outreproduce the more able individuals, whether ability were measured by occupation, educational attainment, Chapin's Social Status Scale, shelter rent paid, intelligence quotient, rural versus urban residence, or income. On the basis of this conviction, important national policy recommendations have been advanced by various students.[1]

This paper has two objectives. The first is to assert that, where income is used as a measure of ability, presently available statistics do not demonstrate that either the higher or the lower ability group is outreproducing the other. The second is to set down the requirements which future studies must meet if relationships which are meaningful in this context are to be discovered. In the remainder of this paper the presently available data will be criticized and then the "ideal" definitions will be set forth.

II

Two essentially different approaches to the relationship between family size and income appear in the literature. Most popular are the differential fertility studies which relate the "number of births" during a given period to "income" or some other measure of "economic status."[2] This, in general, has been the approach of the demographers. The other line of approach is that used in family-income studies. There the current size of "household" is compared to the size of the "family income" or, sometimes, to the "income of the principal income recipient."

A few studies made by recognized authorities in demography have previously cast some doubt upon the probability of the inverse relationship between ability and reproduction. Thus Jacobson concludes from his sample study of white residents of the city of New York that "it would also seem possible, should the forces at work prior to the war continue, for the birth rate to be approximately related to economic status in the post-war era."[3] Likewise, Kiser states that "the traditional characterization of Negroes as highly prolific is undergoing change."[4] And, again, that "there is evidence that the present declines in birth rates are more pronounced among rural than among urban population."[5] And,

[1] See, e.g., *Report of the Royal Commission on Population* (Cmd. 7695, Parliamentary Session, 1948–49 [March 18, 1949]) for striking official recommendations of this nature.

[2] Important examples of this type of study not referred to in subsequent notes include: Frank W. Notestein, "Class Differences in Fertility," *Annals of the American Academy of Political and Social Science*, November, 1936, and Bernard D. Karpinos and Clyde V. Kiser, "The Differential Fertility and Potential Rates of Growth of Various Income and Educational Classes of Urban Populations in the United States," *Milbank Memorial Fund Quarterly*, Vol. XVII, No. 4 (October, 1939).

[3] Paul H. Jacobson, "The Trend of the Birth Rate among Persons on Different Economic Levels, City of New York, 1929–1942," *Milbank Memorial Fund Quarterly*, XXIII, No. 2 (April, 1944), 144.

[4] Clyde V. Kiser, "Birth Rates and Socio-economic Attributes in 1935," *Milbank Memorial Fund Quarterly*, XVII, No. 2 (April, 1939), 128.

[5] *Ibid.*

finally that, "in fact, in most instances there appeared to be an absence of inverse association between birth rates and income among families earning more than $1,500 per year."[6]

But the picture is far from clear. Kiser's study, just cited, based upon occupational, educational, and acquisitional measures of ability, found the traditionally expected inverse relationship among those of higher status in "large eastern cities" though not elsewhere. Then, too, Kiser, writing with P. K. Whelpton, working with a selected sample of Indianapolis residents, reports a generally falling relationship between the recent average annual earnings of the husband and the children born per 100 couples, although a somewhat higher fertility is indicated in the highest income group listed.[7] Their results are summarized in Table 1.

The generally inverse relationship is also indicated in a Census publication wherein the number of children under five years old in families containing women from fifteen to forty-nine years of age living with their husbands and children was related to the rent paid. While a neat and persistently inverse relationship was discovered, the probability that it concealed part of the truth is indicated by this study, because 518 young children per 1,000 women were found where the home was owned, while only 484 were found in rented homes. Moreover, any study of this type which relates to the number of children under a particular, early age to income (and this includes the typical study of differential fertility) will tend to include the more fertile women in lower income and rent groups, since incomes usually rise with the age of the parent up to the age of forty or beyond.

TABLE 1

NUMBER OF CHILDREN BORN PER 100 COUPLES, BY FAMILY INCOME

Income	Children
$3,000 and over	159
$2,000–$2,999	149
$1,600–$1,999	163
$1,200–$1,599	189
Under $1,200	227

From this sketchy review it is, perhaps, fair to conclude that past studies based upon differential fertility are not adequate to support the traditional view that the most competent groups exhibit the lowest rate of reproduction in our population. There is some evidence pointing in the opposite direction, and there is some reason to believe that a positive relationship may become established even if the present relationship really is inverse.

Family-income studies typically find a generally positive relationship between family income and size of family or household. Table 2 presents characteristic data of this sort.[8]

[6] *Ibid.*, p. 148.

[7] Claude V. Kiser and P. K. Whelpton, "Social and Psychological Factors Affecting Fertility" (ninth in a series), *Milbank Memorial Fund Quarterly*, XXVII, No. 2 (April, 1949), 206. The marked inverse relationship between earnings and births for incomes below $3,000 is noted by Kiser and Whelpton, and the higher fertility rate for the $3,000-and-over class, is attributed to an increase in family size associated with higher incomes where most of the group is successfully applying contraception. Thus the move toward positive association of income and family size for income classes $2,000 and over is regarded as a different relationship within a class, revealing an influence not yet strong enough in other income classes to reverse the traditionally accepted relationship for the nation as a whole. The possibility that larger families would be found in the higher status groups if all births were planned is also considered by Professor Notestein (*op. cit.*, pp. 4–5). He cites a study by Karl A. Edin and Edward P. Hutchinson which clearly indicates higher fertility rates for the higher income groups in Sweden in 1919–22 (*Studies of Differential Fertility in Sweden* [London: P. S. King & Son, 1935], p. 59). An interesting side light of this study was the fact that occupational differences in fertility at any given income level were scattered and negligible. Notestein attributes this result to the widespread and established practice of contraception in Sweden. He further points out that in China, where contraception has not been an established practice in any major social group, a slight positive relationship between status and size of family is also indicated.

[8] Other data of this general sort may be found in the following places:

Data of this type are inadequate for the present purpose for numerous reasons which differ in detail from study to study. All the studies, however, exclude children which are now independent of the household examined and include at least blood relatives, such as grandparents, aunts, uncles, and cousins who happen to be living in the household. There is no reason to believe that these distortions offset each other. Moreover, "income" usually includes income for all earners from all sources and excludes all but the income of the present year. These are an inclusion and an exclusion which tend to disqualify the concept as a measure of "ability," at least from certain points of view, as will be pointed out.

Corroborative results are also to be found in other studies which have been made in the same way but which present their findings in a different form, namely, the median income received by families of different sizes. Since the data used for Table 2 were also presented in this manner, it may be useful to draw once again upon that source to illustrate in Table 3 typical results so that the methods of presentation can be compared.[9]

TABLE 2*

MEDIAN SIZE OF FAMILY BY FAMILY-INCOME LEVEL IN THE UNITED STATES, 1947

Total Money Income Level	Median Size of Family
Under $500	2.47
$ 500–$ 999	2.42
$1,000–$1,499	2.84
$1,500–$1,999	3.09
$2,000–$2,499	3.14
$2,500–$2,999	3.25
$3,000–$3,499	3.39
$3,500–$3,999	3.35
$4,000–$4,499	3.34
$4,500–$4,999	3.56
$5,000–$5,999	3.62
$6,000–$9,999	4.01
$10,000 and over	4.02

* Source: Bureau of the Census, *Current Population Reports, Consumer Income* (Series P-60, No. 5 [Washington: Government Printing Office, February, 1949]), Table 3, p. 17.

United States Bureau of the Census, *Families, Size of Family by Age of Head* (Washington: Government Printing Office, 1944), Table 8. Wage and salary income of the family is compared to the size of family living at home, including persons who are neither parents nor children of the immediate family. Computation is necessary to derive average family size from data set up to show median income by size of family. The section of this table which presents data by the age of the family head is of special interest. The thirty-five to forty-four age group probably contains the largest proportion of completed families and also probably approximates the earnings of mature workers, but it is nevertheless unsatisfactory because of probable differences in people other than parents and children in the "family," differences in the number of children living at home, and other differences in the situation of typical members of the various income groups.

U.S. National Resources Planning Board, *Family Income in the United States* (Washington: Government Printing Office, 1941), pp. 6–7, Tables 18, 19, 20. In this study the average number of "persons living together under a common roof" is compared to "total net money income, plus some non-monetary income." Additional breakdowns are given by urban, rural nonfarm, rural farm, and relief and nonrelief classifications.

Minnesota Resources Commission, *Minnesota Incomes 1938–39*, Vol. I (St. Paul, Minn.: WPA Official Project No. 665-71-3-101 and 165-1-71-6, June, 1942), pp. 83–133. The size of the "economic unit" is compared to the total income of the economic unit. It is asserted that the definitions used here, particularly as regards "size of the economic unit," accord very closely with those used by the National Resources Planning Board, referred to immediately above. A wealth of material is presented in this study, breakdowns being made by occupational groups, by size of city, urban, rural, and other classifications. In almost every case a positive relationship is found.

Institute of Labor Economics and Public Opinion Laboratory, *A Survey of Income and Expenditure Patterns in the State of Washington in 1948* (Seattle: University of Washington Press, 1950), unpublished appendix. Total family income is related to the size of family, using definitions which approximate those of the National Resources Planning Board.

[9] Other studies which use this approach include: Abner Hurwitz, "Family Incomes and the Cost of Family Budgets," *Monthly Labor Review*, LXVI, No. 2 (February, 1948), 177; "City Family Composition in Relation to Income, 1941 and 1944," *Monthly Labor Review*, LXII, No. 2 (February, 1946), 175–80; United States Bureau of Labor Sta-

Studies of this type are subject to all the major flaws which can be ascribed to the investigations referred to in connection with Table 2. To be sure, some of them present breakdowns according to the number of children under sixteen living with both parents by income group.[10] But the income is the one associated with the year the survey was made, and the families certainly cannot be assumed to be complete. More important, this breakdown is not particularly relevant, since it is evident from a comparison of Tables 2 and 3 that, in spite of the fact that families of seven or more had median incomes of $3,268 while somewhat smaller families had larger incomes, the median family size of the higher income groups is higher than that of the middle income groups. The relationship presented in Table 2 is the more significant if we are trying to find out whether the people who find themselves in the higher income groups are maintaining themselves in the general population.

TABLE 3*

MEDIAN FAMILY INCOME BY SIZE OF FAMILY IN THE UNITED STATES, 1948

Size of Family	Median Income
2	$2,456
3	3,045
4	3,292
5	3,535
6	3,419
7 or more	3,268

* Source: See Table 2.

tistics, *Family Income and Expenditure in Chicago*, Vol. I (Bull. 642 [Washington: Government Printing Office, 1939]); United States Bureau of Labor Statistics, *Cost of Living in the United States* (Bull. 357 [Washington: Government Printing Office, 1924]). The Census publication *Families, Size of Family by Age of Head* cited in n. 8 also used this relationship as the basis for its presentation. It was listed above because it was possible to compute the more meaningful relationship.

[10] Hurwitz, *op. cit.*, and *Family Income and Expenditure in Chicago*.

III

The failure of the various studies to confirm one another even upon the sign of the relationship may conceivably be accounted for in various ways. The populations sampled differed in time and geographic area, and it is possible that sampling errors may have been significant. However, since different definitions of "family size" and "income" are used in the various studies, it is evident that different aspects of social life were being examined. Since this is the case, the student has no alternative other than to make more explicit the questions which have aroused interest in this relationship in an endeavor to decide what the most relevant definitions of these variables are.

Interest in this relationship stems from concern over prospective changes in population quality. Such changes may flow from two basic sources: variations in the innate ability of the parents and variations in environmental opportunities for the children, with each related to the number of children reared. Hence, interest attaches to two different family size–income relationships: (1) wherein income and family size are defined relevant to "ability," a concept implying heavy emphasis on hereditary attributes, and (2) wherein income and family size are defined relevant to environmental opportunity. The most appropriate definition of "income" and of "family size" turns out to be different for each case.

Income, however defined, cannot be expected to correlate very closely with innate ability as such. Too much depends upon motivation and opportunity. Nevertheless, several studies indicate that income is more closely associated with innate ability, at least as it is measured by intelligence tests, than are such popular measures of population quality as educational attainment or occupational status.[11] Then, too, at least one

[11] See, e.g., the following: George F. Zook, *Report of a Fact-finding Survey of Technical and Higher Education in Massachusetts* (Massachusetts Legislative Doc., House No. 1700 [December 26, 1923]), p. 89.

H. A. Toops, "Tests and Techniques," *Occupations*, XII (April, 1934), 20–24.

Herschel T. Manuel, "Ability of High School

psychologist has reached the tentative conclusion that the particular *combinations* of *abilities* which enable individuals to make widely differing contributions to society may well approximate the highly skewed distribution which is typical of family incomes.[12] This is in contrast to the typical psychological findings on distribution of abilities which usually indicate an "unskewed" or normal occurrence. Still, the present authors know of no studies which indicate that these unusual combinations are likely to be passed on by inheritance; hence a useful connection between income and innate ability, as passed on to succeeding generations, cannot easily be assumed.

There is, however, a logical connection between the earned income of a person and his innate ability. It can be described as follows: Earned income is some function of achievement and the market evaluation of that achievement. And achievement is some different function of innate ability, motivation, and opportunity. It is here suggested that income (presumably "earned" income, exclusive of property incomes, which are likely to have been inherited) is rather closely related to "achievement" or ability of individuals as used to contribute directly to society.[13] While these combinations of abilities (which may or may not have hereditary significance) are imperfectly reflected in the schedule of "earned" incomes, earned income presents a measure which seems to be more closely connected with innate ability than some other tests which have commonly been used.

If income and family size are to be used to best advantage to test the sort of "ability" described above, they will have to be defined somewhat differently than they have been hitherto. The definitions which seem most nearly to isolate the relationship which

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Seniors in Relation to College Attendance," Texas Commission on Coordination of Education, *Research Bulletin*, VII (1938), 39.

C. G. Griffitts. *Fundamentals of Vocational Psychology* (New York: Macmillan Co., 1924), pp. 312–14, cites data from the National Academy of Science, *Memoirs*, Vol. XV. Data presently available from the testing programs used in the second World War, while yielding the same kind of results, are less useful for our purposes because inadequate data are presented concerning the high status occupations as a result of the exclusion of data secured on the officer group.

Harold F. Clark, "Educational Income," *Encyclopedia of Educational Research*.

That there is limited correlation between occupational status and income may be seen by a glance at data showing incomes by occupational groupings, e.g., United States Bureau of the Census, *Population Reports, Family Wage or Salary in 1939* (Washington: Government Printing Office, 1943), Table 7, p. 77. This table indicates that, in 1939, 58.6 per cent of those in the upper 11 per cent of family wage or salary income receivers (with incomes of $3,000 and over) were in occupational groupings other than "professional and semiprofessional" and "proprietors, managers, and officials, including farm."

James Maxwell (ed.), "The Psychological Quality of the Population: Report of a Discussion," in *The Advancement of Science*, Vol. VI, No. 29 (London: British Association for the Advancement of Science, June, 1950). This very interesting British study has come to the authors' attention too late to be fully integrated into this paper. In it Professor L. S. Penrose presents a hypothesis to explain on biological grounds the maintenance of a constant level of population intelligence, stature, and longevity in the face of a strong inverse relationship between these qualities and family size. Maxwell uses the data from the Scottish Mental Surveys of 1932 and 1947, which made comprehensive mental tests for eleven-year-old children. No confirmation of the previously forecast decline in general intelligence could be established over the fifteen-year period in spite of the fact that negative correlations exist between intelligence quotients and size of family, whether taken generally or by individual socioeconomic groups. Nor was a rise in intelligence quotients ascertainable. "Size of family" as defined for this study is limited to parents and natural children but includes uncompleted as well as completed families.

[12] Professor Cyril Burt finds this a reasonable conclusion from the facts concerning income distribution and psychological testing of abilities. He observes that "in many intellectual fields, at any rate, the distribution of the output itself approaches the J-shaped curve (shown by income) rather than the symmetrical curve (shown by measurements of intelligence)" ("Ability and Income," *British Journal of Educational Psychology*, XIII, Part II [June, 1943], 98; economists will be interested in this article).

[13] No perfect correlation could, of course, be anticipated. Many people who in the light of history have made a signal contribution to their society have gone unrewarded during their lifetime.

appears to be relevant should meet the following tests.

In defining income, account should be taken of the following points: (1) only the wage and salary income of the principal income recipient should be included, and (2) the "normal" income of the mature worker should be approximated by one of the following devices: (*a*) for the families in which the principal income recipient is forty-five years of age or older and still an active worker, the average income earned during the last ten years may be used; (*b*) where the principal earner is no longer actively employed, the ten-year average income earned during the last years of his contribution to the full-time labor force of the nation should be used; (*c*) for younger earners, "expected income" as mature earners should be used.

Likewise, in defining "family size" appropriate to innate ability, account should be taken of the following: (1) The parents should be included along with all children ever born to the father, except those who died at some very early age, say, five, and who may have, therefore, been "replaced" in families which have successfully controlled their size; all other individuals should also be excluded. (2) A real attempt must also be made to find the size of "complete" families. As in the case of income, this means that different procedures must be followed for different age groups: (*a*) where the father is forty-five years of age or older, it may be adequate to assume that the family is complete; (*b*) where the father is younger, the planned size of the completed family should be ascertained as well as the present size. (3) Separate listings should be made where the father is dead because of the marked effect which this is likely to have upon family income.

Owing to general fluctuations in the price level, income data found separately for the young, the mature, and the retired income groups probably will not be comparable. Unless a good case can be made for "correcting" the income figures, the data must be handled separately. In general, there would not seem to be a good case for so correcting the data. As was noted by Jacobson and Kiser, cited earlier, there seems to be a secular trend in this relationship which would invalidate a combination of the various age groups.

The second reason for interest in the relationship between family size and income flows from a concern over differences in environmental opportunities for the children. The total family income relevant to this relationship should probably include all the income "earned" and "unearned" of all the family members. Since the main purpose of this income figure is to discover the "net income" available for the enriching of the experience of the child, some attention should be paid to the income per child. But this attention should not be carried to the point of using per capita income as the measure of environmental opportunity because it has been suggested that the per capita cost of subsistence falls as family size increases.[14] It should be noted further that a larger family in and of itself may provide a superior background of experience for children.

1. As a possible compromise the total family income from all sources adjusted by the costs of subsistence as determined by one of the various budget studies in accordance with the size of family may provide an acceptable measure of "net income" for our purposes.[15] Notations should be made in recording these data indicating the age range of the children. The costs of subsistence might best be determined on the basis of all members of the household, even those unrelated to the head, regardless of the number of natural children. But all children reared by the family should be accounted for.

2. Special notation should also be made relating to the number of workers in the family, and separate treatment be given in

[14] Hurwitz, *op. cit.*, p. 177.

[15] There is no intention to suggest that environmental quality, any more than ability, can be exactly measured solely by measuring income. Many very important factors such as the perceptiveness and attitudes of the parents may not be closely associated with any measure of income, least likely of all, perhaps, total family income from all sources.

those cases where the mother works, or worked, full time while the children were less than twelve years old, since income from this source probably should not be counted as a net gain to the environmental opportunity of the child.

3. The total family income which is relevant to the environmental opportunities of the children would appear to be the average family income during the time that the children were living at home when they were, say, fifteen years of age or less. In the case of completed families, the actual incomes could be given, while in the case of uncompleted families any actual income which may have been earned thus far would need to be supplemented with the expected income of the family.

Again nothing should be done which would seriously obscure any secular changes in the relationship.

The definition of "family size" which is most relevant from the standpoint of environmental opportunity also differs from that appropriate to innate ability or achievement. From the standpoint of environmental quality, it is important to measure family size by childhood residence, excluding natural children not reared in the father's home, but including adopted and stepchildren so reared. Again the number of children in *completed* families, including, in this case, adopted and stepchildren, should be obtained. Where the families are not yet complete, the prospective size of family should be ascertained.

IV

In summary, this paper has set forth the following arguments. (1) Available data present inadequate bases for conclusions concerning the nature and degree of association between income and family size as it relates to the problem of predicting changes in population quality. This seems to be primarily a result of definitions of "income" and "family size" irrelevant to any causal relationship they may bear to "ability" and environmental quality. Hence, more studies are needed. (2) A future study of the income–family size relationship for this purpose should take account of an ability-environment dichotomy in defining the terms "income" and "family size." Thus, on the one hand, income should be defined to measure, in so far as it can, ability of the parents; and, correspondingly, family size should be defined to show hereditary influence. On the other hand, income and family size should be defined and the data separately shown, to measure, in so far as it can, the quality of the children's environmental opportunity.

The possible causal and functional relationships between hereditary ability and environment, as they are related to income and family size, are not explored here; but it is possible that cross-classification of the sets of data, which are here called for, may shed some light on these relationships.

BOOK REVIEWS

The Commerce of Nations. By J. B. CONDLIFFE. New York: W. W. Norton & Co., Inc., 1950. Pp. xi+884. $7.50.

This book is much larger in purpose and more impressive in achievement than its title suggests. Professor Condliffe has written a book designed to provide perspective for our understanding of contemporary international economics. Employing the historical approach, he sketches the long and tortuous development of world trade and investment from antiquity. Although this sketch is drawn with obvious learning, it is merely the descriptive core of the book. The author also attempts, in stimulating if not wholly successful fashion, to trace along roughly parallel lines the historical evolution of economic policy and theory. The policy, although dealing with the "commerce of nations," is presented as a compound of economic, political, and ethical elements. The theory, although focused upon international economic relations, encompasses far more than trade and investment. Condliffe treats all economic theory which has impinged upon his problem—which in his judgment includes virtually the entire body of theory.

Specifically, the book contains four major sections. Part I, including five chapters, deals with "Historical Origins" through the eighteenth century. Part II, containing eight chapters, covers "The Nineteenth Century." Part III, with five chapters, sketches the first half of the twentieth century, a time of "Wars and Revolutions." Part IV, "The Modern Problem," has but four chapters. This final section begins with a chapter on "The Assumptions of a Modern Theory" and also mirrors Condliffe's policy position—which is apparently to salvage as much of the international free-market mechanism as is now possible.

This book has great and obvious merit. Its range and breadth are remarkable, as thorough and perceptive scholarship has been applied to two thousand years of trade, policy, and theory. Economic institutions are examined in the context of their time, place, and culture. Trade policy and theory are studied as integral parts of general economic policy and theory. A remarkable attempt is made to see the problem whole, yet never ceasing to center upon international economics. This attempt is brilliantly conceived and implemented in the sections dealing with the pre-nineteenth-century eras. Beginning with the "Dissenters" of the nineteenth century, and painfully evident in the sections on the twentieth century, the focus becomes blurred; and the analysis is occasionally discursive.

Despite the care and learning which he brings to his task, Condliffe encounters increasing difficulty in painting on a canvas of these proportions. His treatment of the actual development of trade, investment, and monetary standards is clear and meticulous from beginning to end. The trouble begins with the attempted integration of trade, policy, and theory and especially in the placing of policy and theory against their more general background. Beginning with the nineteenth century, when policy became more complex and economic theory more diverse, this task of achieving integration and perspective gets very difficult.

Although trade theory is probably less important to economic theory now than it was in earlier centuries, Condliffe reverses the emphasis. The relation between the frame and the picture tends to change rather disconcertingly from century to century. The sheer difficulty of integrating multifaceted modern economic theory sufficiently to place trade theory in its theoretical context is also very evident in the latter portions of the book. A similar problem has plagued the author in his attempts to examine trade and investment policy against a background of nationalism, economic planning, and war.

Condliffe's attempt to formulate a basis for modern theory and policy is somewhat compromised by his occasionally intrusive orientation toward the free market. The sketch of classical economics and the description of the world economy in the nineteenth century are magnificent. Condliffe's analysis becomes markedly less satisfactory, however, as he deals

with theory and policy antagonistic to or incompatible with the free market. His treatment of Marx is casual and fragmentary, and his analysis of List seems to reflect a persistent conception of nationalism as a somewhat inexplicable aberration. Among the "Dissenters," such writers as Müller and the members of the historical school are not included.

The author's general treatment of nationalism reflects the same approach. The importance and impact of nationalism are clearly recognized. A fundamental weakness of the analysis, however, is Condliffe's failure to probe nationalism for its own origins, cultural context, and character. One is led to believe, in occasional glancing references, that nationalism has fed upon war and the search for welfare—but what have these fed upon? Nationalism often seems to be depicted as a malignant and disruptive force loosed upon the world without much rhyme or reason. New formulations of theory and policy, such as Condliffe seeks, can be facilitated by fuller understanding of nationalism as a social, political, and economic movement and phenomenon.

In balance, however, this is a first-rate book.

C. Addison Hickman

State University of Iowa

Lezioni di politica sociale. By Luigi Einaudi. Torino: Giulio Einaudi Editore, 1949. Pp. xviii+252.

This is a remarkable book, written by one of Italy's most remarkable personalities. The author is world famous as a scholar, educator, and public servant; and in this book he combines critical analysis and popular presentation for the end of political education.

The book itself is the outcome of a period of exile which Professor Einaudi spent in Switzerland in 1943 and 1944. It consists of three parts, each one corresponding to a phase of his exile. The first part, describing the mechanism of a market economy, was prepared as an introduction and guide to popular courses for Italian refugees in Swiss camps. The second part, dealing with problems related to social policies, includes lectures delivered by the author to Italian students in Swiss universities. The third part, analyzing the principle of "equality" in competitive or collective types of society, is a draft of lectures which the author proposed to give at the University of Geneva.

Einaudi describes in simple and detailed terms how the economic system works and leads the reader through common-sense observations to logical and clear conclusions. In his presentation, the author is guided by few general premises, which may be briefly summarized as the desire of the individual to maximize the benefits which he strives to secure through his own efforts. Thus, while refraining from assuming doctrinal positions or a moralizing tone with respect to political and social issues, Einaudi reaffirms firmly his personal belief in individual freedom of choice and initiative.

Of particular interest in this respect are his comments on the principle of individual equality, which he analyzes with regard to different types of society (economic, political, and religious) which have prevailed in various epochs of history. Individual competition, in order to operate successfully in a free economy, requires that individuals be in a position of comparative equality at their departing points ("Uguaglianza dei punti di partenza"). History and experience suggest to him that institutions and families rise and fall over relatively short periods of time, as the process of accumulation and dissipation of wealth proceeds rapidly through few successive generations. In order to further this process, however, Einaudi would favor the application of a graduated inheritance tax, with rates progressively higher in direct relation to the number of intervening generations between the original owner and the actual heir of the property.

At another point Einaudi warned against malpractices of governments in monetary and other matters, and expressed the wish and hope that it might be possible to arrest the depreciation of the Italian currency at a certain point before complete loss of value. It was only a few years after expressing these thoughts that Einaudi was called upon—as governor of the Bank of Italy and deputy-prime minister—to apply his own teachings in practical matters of government budget and bank credit. The success which he achieved, in stabilizing the finances of his country and restoring the confidence of the public in the lira, tends to confirm the validity of his "common-sense" approach to economic problems.

Frank M. Tamagna

Washington, D.C.

The Ruling Class in Italy before 1900. By VILFREDO PARETO. (*Old and New Sheaves*, ed. GIUSEPPE PREZZOLINI.) New York: S. F. Vanni, 1950. Pp. 143. $3.50.

Although the four essays reprinted in this small volume do not offer any systematic treatment, they will be welcomed by sociologists interested in the genesis of the concepts of the ruling class and the "circular flow of the elites." These articles were written between 1887 and 1897, one in English and three in French. Most important is the first essay, which appeared in 1893 in the *Political Science Quarterly* and in which the writer, with the merciless objectivity of a professional surgeon, dissects the forms of parliamentary corruption in Italy at the close of the nineteenth century.

Pareto gives a full account of the political abuses in all spheres of government. In the provinces the political leaders were largely recruited from those members of the bourgeoisie who took public office to recuperate from financial loss. Corruption, according to him, was unavoidable, since the Italian democracy had failed to develop political parties in the true sense. This failure led to the country's being ruled by changing groups or cliques of politicians more interested in maintaining their personal power than in keeping their promises. In general, these politicians did not even submit party platforms to the Italian electors. Since the leaders were accustomed to adjust their views and objectives to changing political needs, they fully deserved the name of "Transformists" coined under the corrupt ministry of Depretis, which, incidentally, destroyed the remaining vestiges of the parties. Political patronage was considered as more than legitimate; it was the base of social recognition. "There is no place in Italy for a citizen who, to preserve his independence, refuses to be a party to political patronage. He finds himself in about the same position as a Hindoo who has no caste" (p. 56). As Pareto cynically states, both politicians and their constituents cared nothing for good government; they had "more direct, more practical and above all more personal ends in view. The electors ask the candidate what he will do for them; and the deputy puts the same question to the ministry that solicits his support" (p. 36).

Since Pareto was a "liberal" in the post-classical sense, he resented any form of economic control exercised by the government. His outlook, therefore, was naturally dark, if not defeatist. In all four essays he attempts to prove that corruption, protective customs duties, monopoly capitalism, governmental centralization, and "étatism" combine to pave the way for the advent of socialism. To him, the Italian democracy meant a system of spoliation organized in the interest of the wealthy class. The lesson to the people, he believed, would not be lost. The elite, as he asserted later, will "circulate."

Where the central government is almighty, only two parties, divided by material interests rather than by ideas, can exist. One of them enjoys all the advantages of the power, while the other wishes merely to depose its adversaries (p. 118). Then comes a day when the spoliators are spoliated in their turn (p. 110). By emphasizing these dangers of "étatism," Pareto anticipated some of the flimsy arguments of those more recent writers who represent the growth of the public sector and the increase in governmental regulations as the main culprits that drive any nation forward on the "road to serfdom."

FRITZ KARL MANN

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British Railways and Economic Recovery. By KENNETH H. JOHNSTON. London: Clerke & Cockeran, 1949. Pp. 352. 18*s*.

The author of this thought-provoking volume was a member of the Liberal party's Committee on Transport, which gave intensive study to the transport question between 1943 and 1945. He is severely critical of railway management up to the time of nationalization of the railways. He describes the railways under private control as "an extreme case of industrial psychopathology" (p. 343). At every turn British railways are compared unfavorably with those of other countries, and the general standard of railway operation is described as sixty years behind the times.

Severest criticism is meted out to management for more than forty years of delay in electrifying the railways. The author believes that electrification would earn from 10 to 20 per cent on the additional investment. It would also save ten million tons of coal annually, an

important matter for Britain's economy. Saving in coal would arise from the greater thermal efficiency of power stations as compared with the most modern steam locomotives.

Competition in transport is held to have worked unsatisfactorily. Duplication of facilities has resulted in increased operating costs and unnecessary investment. The result has been higher rates, presumably by agreement, or as a result of efforts of regulation to maintain adequate earnings for the industry. After 1918 the railways faced rapidly growing competition from road transport, but by 1938 the rival interests of road and rail had agreed that rate competition must cease and by the end of the war had drawn up schedules of increased rates which they were ready "to spring upon the public at the first opportune moment" (p. 56). Past rate policies receive severe condemnation. The traveler has been mulcted by high passenger fares; rates on food and merchandise have been high; low rates have been maintained on coal and raw materials as a sort of subvention to manufacturing which encounters strong foreign competition.

Nationalization of the railways seemed the only way to bring about improvement in Britain's transport system. How much of a beginning the government has made toward such improvement the author does not say. He believes that "C" licenses should be restricted, that is, that private hauling on the highways should be curtailed, and he criticizes the government for planning to spend £150 million on a thousand miles of "motorways," largely connecting important traffic centers. The author believes that all interest charges and other overhead of the railway system should be shifted to the taxpayer, leaving only the direct operating costs to be charged against the users. This is justified on the ground of general public benefit from the railways. This policy, he points out, has long been accepted in connection with highways. The principal arguments for his proposal, however, rest largely on sociological grounds and relate to peculiar conditions existing in Great Britain. With overhead a state charge, the railways would no longer need to exploit the passengers to pay a return on railway capital. Cheaper fares would relieve congestion in the cities and enable the workingman to live in the suburbs or the country. Rates at noncompetitive points would not have to bear the burden of railway overhead but could be brought down to the level prevailing where sea or highway competition exists, thus encouraging the location of industries in other than crowded centers now enjoying competitive rates. Lower passenger fares would decrease the demand for autos and hence the imports of gasoline and rubber. Holders of "C" licenses would use motor vehicles only when the direct cost of hauling goods by highway was less than the direct cost of moving them by rail, or where the higher cost by highway was offset by greater speed or convenience.

Reading this volume suggests that competitive wastes and duplication of transport facilities are a more serious matter in Britain than in America, constituting a drain upon her economy which she cannot afford. Measures to deal with the problem which would not be acceptable here are likely there.

D. PHILIP LOCKLIN

University of Illinois

British Broadcasting: A Study in Monopoly. By R. H. COASE. Cambridge: Harvard University Press, 1950. Pp. ix+206. $2.75.

It is fortunate that there should appear the year before the British Broadcasting Corporation's charter renewal such a well-documented account of why, of all possible systems, a public monopoly in broadcasting arose in Britain. For, though the possibility of electrical interference necessarily limited the number of stations that could operate simultaneously in 1922, this by no means justified monopoly. It merely presumed that some central authority must allocate wave lengths and penalize violators. The Post Office originally favored a monopoly run by the major set manufacturers to avoid the complex job of deciding which independent licensees should operate which frequencies, at what times, and with how much power.

Four new arguments justified a public monopoly in 1925. First, it was feared that a private monopoly would give participating manufacturers advantages in pushing their wares. Second, commercial independents seeking to maximize profits might "concentrate upon the populous centres yielding the largest revenues" and underserve "less remunerative districts" (p. 181). Coase wonders whether this logic

stands if the independents are municipalities or universities, or whether it does more than underline the need for careful allocation of frequencies. Incidentally, American authorities tried to meet this very problem by designating a group of so-called "clear channels."

Third, despite the lack of conclusive evidence, monopoly was approved on grounds of efficiency. But, until someone actually measures differences between "higher contractual costs of a network of independents" (say, in America) and the possibly "higher management costs of monopoly," Coase refuses to give this argument any weight. For him the economies of size are not self-evident.

Finally, the main bulwark of monopoly was (and is) a desire to maintain "unified programme policy." Apparently only this objective explains the government's attempt to suppress wire broadcasting at home and British-sponsored broadcasts from the Continent—services which neither raised BBC's costs nor caused electrical interference. The government and BBC held that strict impartiality on controversial public issues was essential in radio because wave lengths were limited physically. Independent services might threaten this impartiality and also upset the delicate balance BBC maintained between news, entertainment, etc., at various times of the day and week.

In rebuttal, Coase refers to the American practice of examining each broadcaster's program plans at initial licensing and subsequent renewals. He agrees that a monopoly might maintain standards more efficiently, but queries, with some recent dissenters, whether even virtuous BBC can remain entirely free from cultural or political bias. It is a fact that Churchill was denied permission to speak against appeasement in 1939 (pp. 166–67). And one wonders with the author whether wire broadcasting and foreign commercials could win the listenership they have if the public were completely satisfied with BBC fare (p. 115).

Careful review of the annals since 1926 (chaps. vi–vii) reveals what Coase finds an amazing lack of criticism of the monopoly's shaky premises. A crucial factor in molding public opinion, it appears, has been the consistent support of BBC by the press, possibly, in part, for reasons of economic interest. Newspapers apparently believed that any alternative to monopoly must involve commercial sponsorship and so endanger their revenues, as did British-sponsored broadcasts abroad. Coase might have made more use of American experience to document this provocative hypothesis. Fears of the British press become quite understandable when one realizes that, in the United States, radio's share of advertising billings (to radio, newspapers, and magazines) rose from 1 per cent in 1928 to 25 per cent in 1946, while the newspapers' share fell from 81 to 53 per cent. Moreover, on January 1, 1950, about 25 per cent of American AM and 38 per cent of FM stations were newspaper-affiliated—which may be explained partly as the attempt by the press to cushion itself against radio competition.

If many readers come to believe that the problems BBC has solved can be met in other ways and that the American system or direct government operation are not the only alternatives, the author will have achieved his main purpose.

HARVEY J. LEVIN

Bard College

Hundert Jahre österreichischer Wirtschaftsentwicklung 1848–1948. Ed. HANS MAYER. Vienna: Springer-Verlag, 1949. Pp. xiii+714.

The economic history of Austria in the nineteenth century and the adjustments made necessary in that country by the severe political changes resulting from the first World War are interesting, rewarding, and so far only incompletely treated topics. Unfortunately, the book under review hardly fills this gap. Its publication was sponsored by the Austrian Chambers of Commerce on the occasion of their centennial, and the contents of the book are in not inconsiderable degree affected by the peculiar interests and activities of the chambers.

The various parts of the book are contributed by different authors. A general sketch of Austrian history since 1948 is followed by a discussion of the historical development of the Austrian chambers of commerce and a series of chapters on the historical development of various branches of economic policy. The largest space is devoted to monetary and fiscal policy, which are ably traced by Professor Kaunitz and Mr. Gratz. Later chapters dealing with commercial policy and the regulatory activity of the government in the fields of industry and transportation are fairly comprehen-

sive, although not so detailed as the sections on monetary and fiscal measures. Two chapters on labor are short and rather unsatisfactory, since the only topics treated are legislation affecting the regulation of the labor contract and such problems as industrial insurance, health insurance, and the like. Problems of unionism are hardly touched upon. No space is devoted to agriculture. The last chapter contains a discussion of the history of economic science in Austria.

The defects of the book as an economic history should be obvious from this short description of its contents. Economic conditions at any one period are touched upon only implicitly or as side issues. The changing level of employment and production, fluctuations in prices and wages, variations in the structure of economic activity are not dealt with, except in some places where monetary and fiscal measures are discussed. The emphasis throughout is not on general economic conditions but on the relation between government and business and the impact of legislative measures on various factors in the economy. Thus, rather than an economic history—as indicated by its title—the book is a valuable, because exhaustive, reference work to governmental policies in the field of economic regulation and the major effects of various regulatory policies in particular fields of economic activity.

The last chapter on the development of economic science in Austria is of interest also to students concerned with the history of economic doctrines. The author of this chapter, Dr. Wilhelm Weber, attempts to trace the relations between economic theorizing and economic policy in Austria in the last hundred years. However, he does not succeed in presenting a really integrated picture of the mutual interaction of these two branches of economic thought. The chapter contains merely a careful and detailed listing of the theoretical and policy points of view of the major (and also some minor) authors; but in presenting this material he succeeds in giving a vivid and instructive picture of the men who have contributed to economic writing in Austria. The revolutionary impact of Menger's theories, for example, becomes more clearly illustrated if one considers that in the early 1860's and 1870's men like Stein, Schäffle, and Adolph Wagner occupied the major chairs in economics in Austrian universities. On the whole, the interpretation of the contribution of the Austrian school is good, and only the classification and evaluation of the mass of economic writings in the 1930's poses an insurmountable problem to Weber. Yet, this last chapter as well as some parts in the earlier discussion of monetary and fiscal policies are the most rewarding parts of the book.

The work has an excellent and exhaustive bibliography and a very good index.

BERT F. HOSELITZ

University of Chicago

Taxable and Business Income. By DAN THROOP SMITH and J. KEITH BUTTERS. ("Fiscal Policy Series," No. 2.) New York: National Bureau of Economic Research, Inc., 1949. Pp. xxv+342. $4.00.

This is one of the National Bureau's prewar projects which was put into "deep freeze" during the war. In 1946 it was "defrosted," reduced in scope, and started through its final phases with some changes in personnel.

The basic purpose of the study is to determine the extent to which, and why, the income which corporations report to their stockholders differs from the income on which they pay federal income tax, or the difference between "book profit" and "statutory net income." In Part I the authors discuss the principal accounting steps involved in determining net income, summarize the treatment prescribed in the income-tax law, and try to state accepted accounting theory for dealing with the same items, recognizing that in some cases there is no general agreement among accountants on the latter point. In Part II they compare income as computed for tax purposes and for company or business purposes, showing the total divergence and the components which make it up. They do this by taking three samples of corporations and comparing their income as shown for tax purposes (unaudited) and their "book profit" as shown either on those same tax returns or on reports to the Securities and Exchange Commission. In the latter phase there were many difficult statistical problems, and the authors and their collaborators showed considerable ingenuity in making the best use of limited data.

Perhaps the most comprehensive and most

significant conclusion of the study is that "on the average . . . book profit and statutory net income did not differ greatly. Book profit typically exceeded statutory net income, but usually by less than 10 per cent. [This was on the basis of unaudited tax returns.] . . . When book profit is compared with audited statutory net income the two figures tend to be about equal in most industries" (p. 167). These are conclusions based on all corporations in the samples for several years; there are considerable differences for individual companies and groups of companies and for separate years. Those differences arose from many sources, but the two most important were "different treatments of assets subject to depreciation and depletion" and "the use of reserves for business accounting that are not recognized for tax purposes" (p. 169). For the corporations as a group, the differences arising from these two sources tend to offset each other; and that goes far to account for the small over-all difference.

The net impression left by the study is that, despite considerable differences on particular points, there are remarkably few major differences between accounting practices for income-tax purposes and for general business purposes. This can be explained, as the authors point out, by two facts: (1) from the beginning the income-tax law has relied heavily upon accepted accounting practices and (2) the income-tax law has, in turn, had considerable effect in shaping and standardizing accounting practice. The differences have come in those instances in which Congress, for policy reasons and on the insistence of business groups, has deliberately and consciously departed from accepted accounting practice in order to confer special benefits on certain groups (*vide* percentage depletion).

The authors make no recommendations, but at least one recommendation is implicit in their findings; namely, that the tax regulations concerning percentage depletion and depletion based on discovery value should be changed. They point out several times that these are the most important differences between tax regulations and accepted accounting practices. In one place it is stated: "By no conceivable manipulation could it [percentage depletion] be applied to a company's own records indefinitely. . . . Depletion in excess of stated value is virtually a contradiction in terms, but the allowances have apparently been sufficiently large to exceed stated value in many cases" (p. 85).

The statistical data used in this study covered the years between 1929 and 1937. Since then there have been many changes in the tax laws and some changes in accountants' ideas as to what constitutes sound accounting practice, especially in regard to depreciation. It would be enlightening and significant to know how the results of the two systems of accounting compare under the LIFO system of inventory accounting, accelerated depreciation, and the more extensive use of percentage depletion. More useful still would be the addition of a brief policy study by recognized tax, accounting, and economic authorities who would interpret the results and make recommendations.

B. U. RATCHFORD

Duke University

Expectation in Economics. By G. L. S. SHACKLE. London and New York: Cambridge University Press, 1949. Pp. x+146. $3.00.

This book is a theoretical discussion of the role of expectations in decision-making by "rational" individuals contemplating large-scale commitments. The three main aspects of the work are: criticism of previous theories, elaboration of an alternative hypothesis, and application of this hypothesis in the discussion of four particular problems.

The criticism of previous theories is leveled only at those using probability analysis in the treatment of decisions which, by their nature, cannot be reconsidered frequently under even roughly similar circumstances. The criticism is made at two levels. Objection is taken to the use of probability distributions to *describe* the set of degrees of belief associated by an individual with each conceivable outcome of an action and to the particular *analytical use* made of such parameters of the distributions as means and variances. Objection at the first level is not impressive; the alternative descriptive device introduced by the author—the so-called "potential surprise function," which denotes the degree of surprise which the individual imagines he would experience at each conceivable outcome of an action—does not differ in any significant way from a subjective probability distribution. Objection at the second level

is more impressive; the mathematical expectation (for example) of gain or loss does not appear to be a meaningful quantity in situations which cannot be repeated. However, the important question here from an analytical point of view is whether actions taken by individuals differ from those they would take if the mean were the guiding quantity in their decisions.

The alternative hypothesis presented may be summarized as follows: A prospect of gain (loss) from a given venture will be the more agreeably (disagreeably) stimulating, the larger is this prospect of gain (loss) and the greater is the likelihood of its occurrence. The decision-maker epitomizes the venture in terms of two conceivable outcomes (called focus outcomes): that which seems most agreeable and that which seems most disagreeable. It is then by ranking alternative ventures in terms of their respective focus gains and losses that the individual arrives at a decision. This notion of focus outcomes is undoubtedly the most significant in the book. Some will be uneasy over the fact that the hypothesis does not admit any consideration of the dispersion of the stimulation function about the focus gain or loss; however, account is taken of the dispersion of the entire stimulation function by the spread between the focus gain and the focus loss.

There will be general agreement that Shackle's main hypothesis is intriguing and in many respects novel. However, the testing of it has not been given adequate consideration. The chapters on applications are formulated more with the aim of elaborating than of testing, and to this it will be worth while for the author and other economists to turn.

WILLIAM C. HOOD

University of Toronto

Authoritarianism and the Individual. By HAROLD METZ and C. A. H. THOMSON. Washington, D.C.: Brookings Institution, 1950. Pp. ix+371. $3.50.

The object of this book is "to state the price of totalitarianism in terms of human liberty" (p. v). As a means of doing this, the authors have selected six types of authoritarian societies and have described the restrictions which each has imposed upon individual freedom. One might describe the book as a comparative study of individual rights under feudalism, absolute monarchy, communism, fascism, nazism, and controlled utopian communities in America. A separate chapter is devoted to each society, and each chapter is divided into sections describing various categories of freedom —political, personal, intellectual, social, and economic. It is all very neat and systematic. With the exception of three chapters on modern totalitarian governments, this is the best that can be said of the work.

It is clear that the book will not reach the audience for whom it was intended. The heavy array of footnotes suggests that the authors were writing for professional scholars. These will find little to attract their interest in chapters whose intellectual level is suggested by statements that in the Middle Ages "the Church definitely disapproved of usury" (p. 34) and that the English Parliament "consisted of the lords, clergy, and representatives of certain other groups of the population" (p. 37). The general reader will be repelled by the scholarly garb of the book and a style (again with the exception of Thomson's chapters on communism, fascism, and naziism) which is considerably duller than that of the average textbook. If it were true that the "fortunate inhabitants of free societies are prone to underestimate the rigor and completeness of control within totalitarian ones" (p. 2), this would be regrettable. I have not noted any great hankering after such societies among Americans.

However, the three chapters on modern dictatorships are worth reading. They contain no new facts and do not offer novel interpretations, but they are penetrating and concise and could conveniently be used as introductions to these systems of government. This cannot be said of the chapters devoted to feudalism, absolute monarchy, and American experiments in social utopias. In none of these does Metz convey to the reader a sense of what it was really like to live under a King John, a Louis XIV, or on the campuses of New Harmony and Brook Farm.

Of the introductory and concluding chapters which flank these essays on authoritarian societies, little need be said. Metz proceeds ponderously to the expected conclusion that the individual was not very free under the old absolute rulers and that he is even less free under new dictators who rule with benefit of modern technology. But the failure to provide new illumi-

nation on the principles and practices of totalitarianism is less disturbing than the poverty of Metz's exposition of the fundamental principles of free society. One feels rightly entitled to more than a parroting of T. H. Green and A. D. Lindsay, empty clichés, such as "The citizen is always the master, the government the servant" (p. 5), and a warning about democracy because democracies "frequently operate on the assumption that each and every individual or minority group can be rightfully subjected to any decision of the state because its determinations represent the will of the majority of society, and the majority knows what is best for the group as a whole" (p. 6). It was this conception of democracy which made me feel strongly that what we need far more than a good book on alien isms is a clarification of the principles which underlie free society and a revitalization of those principles in terms of American democratic ideals and experience.

CECELIA M. KENYON

Smith College

The Philosophy of Thorstein Veblen. By STANLEY MATTHEW DAUGERT. New York: King's Crown Press, 1950. Pp. vii+134. $2.25.

As the author remarks in the opening sentence of his Preface, "Despite its title this volume is not a completely definitive statement of the philosophy of Thorstein Veblen." This is greatly to be regretted, most of all because we need such a statement, but also because any attempt to trace the sources of Veblen's philosophy, as Professor Daugert has here tried to do, is bound to reflect the incompleteness of our understanding. I am very much afraid that readers who do not already grasp the significance of Veblen's work will be unlikely to find it revealed to them in this book.

Nevertheless, students of Veblen will find much that is valuable to them in Daugert's study, some of it uniquely so. Thus the two middle chapters (of a set of four) carry the essential continuity of Veblen's conception of human nature and of institutional evolution with that of Peirce and of the whole pragmatic-instrumentalist movement that stems from Peirce very much farther than Morton White was able to do in his *Social Thought in America*. The truth is that Veblen was much more completely a part of a much more significant "movement" than most economists have yet realized. This, at least, Daugert makes unmistakably clear. Then, too, by grace of his grasp of this background the author makes more sense than most writers have done of Veblen's notion of institutions and even of his exceedingly loose conception of "instincts"—this in spite of his neglect of the polarity of (pecuniary) ceremonialism and (industrial) workmanship which seems to me to have been the central figment of Veblen's thinking.

In the last chapter, entitled "Human Welfare, Science, and Technology," the author declares, "There is, of course, a theory of value implicit in Veblen's philosophy," and goes on to say: "From 1906 to 1924 Veblen concentrates his attention on technology. He attempts to prove the thesis that the state of the industrial arts in civilization is accountable to the 'instinct' of workmanship and its 'contamination' . . . with, I think, limited success."

Daugert deserves high praise for seeing a theory of value where so many others have missed it; and his verdict of limited success may be true of *Imperial Germany*, on which this sentence is a comment. But it is strange indeed that he should rest his case on that particular book, and still more strange that he should treat Veblen's "instrumental or technological theory" as a relatively late development. It is certainly basic to *The Theory of Business Enterprise*, and Lester F. Ward's celebrated review of *The Theory of the Leisure Class* emphasized its importance even for Veblen's first book.

Daugert's most noteworthy contribution is his virtual discovery of Veblen's early essay on "Kant's *Critique of Judgment*," which, so far as I know, has been ignored hitherto by all students of Veblen, including myself. The author devotes his entire first chapter to this essay, showing that Veblen's Peircian interpretation of Kant is a precursor of his theory of social progress. But here, too, he lets an important discovery slip through his fingers. One of my students, Richard Sterba, who recently made the same discovery, has convinced me that the analytical methodology which is forecast in that neglected essay can be traced through the whole of Veblen's work and is, indeed, his variant of Dewey's well-known "continuum" of means and ends. It is the principle

of cumulative causation, by Peirce out of Kant, that found expression in Veblen's theory of technological process and so underlies his "instrumental or technological theory" of value.

Daugert has made an important contribution to our understanding of an important body of ideas; and on that account it is especially regrettable that his searchlight does not penetrate just a little farther.

C. E. AYRES

University of Texas

Discontent at the Polls: A Study of Farmer and Labor Parties, 1827–1948. By MURRAY S. STEDMAN, JR., and SUSAN W. STEDMAN. New York: Columbia University Press, 1950. Pp. x+199. $2.75.

Norman Thomas relates the story of a Democratic party street-corner orator who, in 1930, told his listeners: "Now, folks, you remember I used to tell you this here old-age assistance is socialistic. It ain't any more. The Democratic Party has endorsed it." The authors have had the engaging idea of studying the left-wing streams in American politics and the ways in which they have fed the two party rivers.

Within a brief compass, the Stedmans discuss the more than a dozen national farmer and labor parties in terms of their platforms, voting accomplishments, strategies and tactics, legal barriers to places on the ballot, correlation of their strength to the movements of the business cycle, and, through the analysis of Roper poll material, an identification of possible sources of third-party potential in this period.

Although the book abounds in "conclusions," it is doubtful whether many of them are merited or proved. The major difficulty is the rubric "discontent." There may be some justification for grouping together, as the authors do, the various populist movements, Socialist parties, the Coughlin-Lemke party of 1936, and the sinistral New York Liberal and American Labor parties, if care is taken to relate these parties to specific historical contexts and to the issues which called them forth. But only confusion results when their vote totals are lumped together into flow charts of "discontented" votes to show dubious trends and inconclusive and even contradictory generalizations. (On p. 48, the authors conclude: "Keeping in mind the historical perspective since 1872, there is evidence that despite violent ups and downs, farmer-labor parties are capturing an increasing share of the popular vote over a period of time." But on p. 36 the authors remark: "The absolute vote won by them has been, in general, increasing since 1872. But the size of the electorate has been increasing at an even faster rate." Appendix A, listing farmer-labor votes as percentage of the total vote since 1872, reveals, apart from three peaks of 1878, 1894, and 1924, no trend whatsoever.)

That so many topics have been packed into 172 pages of text is no miracle of compression but an indication of the generality of the discussion. One major conclusion is that "these parties have been most successful as popularizers of ideas and issues"; yet the discussion of party platforms is highly skimpy and largely a selective catalogue of those electoral demands which were "endorsed" later by the major parties. But how meaningful were these demands to the total program of these parties? Despite the sketchy material, the authors fear not to tread in the area of large-scale generalizations. Thus, a "second conclusion [of four on the type of party platforms] is that the degree of continuity in the ideology of many of the farmers and labor parties is impressive." And this is followed by the naïve illustration: "In many cases even the language is similar . . . both the Populists and the followers of Henry A. Wallace were prone to use Biblical quotations."

Perhaps the weakness of the book lies in the fact that, having decided to lump together ideological parties as well as interest groups under a common heading, the authors followed in mechanical fashion some conventional topics, rather than seeking to analyze their data in terms of a set of problems, i.e., a test of the old Holcolmbe thesis of the shift from sectional to functional group voting or the impact of the New Deal on the left wing, particularly the Socialist party. Perhaps such a weakness is inevitable when these movements are seen against an abstract canvas rather than the specific social shifts in American class structure.

DANIEL BELL

New York City

Conflicting Patterns of Thought. By KARL PRIBRAM. Washington: Public Affairs Press, 1949. Pp. viii+176. $3.95.

In such periods of ideological transition as the present, the specialist is often forced to

carry his inquiry back to the ultimate before he can begin to work within his own domain. Dr. Pribram, concerned with unraveling the historical pattern of economic thought, found it necessary to begin with an analysis of general thought patterns, which he now presents as a separate book. He has accomplished the encyclopedic task of presenting a clear-cut and imposing schema of classification.

He distinguishes four patterns of thought according to their answer to "the general question of whether the mind is capable of arriving directly at insight into the order of the universe" (p. 2) and correlates them with socioeconomic institutions and political systems. The *universalistic* pattern, relying on the "identity of thinking and being," resulted in the medieval theocracy; the *nominalistic*, denying this identity and the existence of innate ideas, established the individual as the prime social factor; accepting this identity but denying the existence of innate ideas, the *intuitional* accorded to the state, and the *dialectical* accorded to the proletariat, the dominant social role.

Nominalism transformed reasoning into an operation in which hypothetical concepts are adjusted to varying purposes without any faith in the absolute validity of such concepts (p. 16). In the economic field "the nominalistic pattern provided the logical background . . . for the introduction and justification of capitalist methods of production and distribution . . . the revolutionary displacement of a rigid pattern of thought by a flexible one resulted in the application of new technological processes" (p. 16). The fictions of general equality of opportunity and of a purely mechanical equilibrium were used to justify the principle of free competition on moral grounds.

The relationship between nominalism, democracy, and the market economy, as postulated by Pribram, seems tenuous. They flourished as long as they were based on the belief in certain absolutely valid concepts like inalienable natural rights and the innate rationality of the individual. Rationalistic science, however, demonstrated that the basic democratic credo is untenable on "purely scientific" grounds; that individuals are neither rational nor "equal"; that the market equilibrium is neither beneficial, stable, nor attainable. In a civilization which tries to justify its basic values exclusively by rational scientific reasoning, any belief in their absolute validity becomes impossible.

Only the one-sided emphasis on physiological need-satisfaction and a purely negativistic concept of freedom as freedom from restrictions can lead to the assumption that democracy and free enterprise can survive in a predominantly nominalist-relativistic cultural climate. A nominalistic world outlook, assuming "randomness of ends," exposes the individual to the terrifying experience of intellectual and ethical insecurity. The hypothetical-pragmatic attitude according to which economic "self-interest" should be the only guide for conduct, combined with the elevation of competition to the rank of an ethical ideal, makes aggression the dominant feature in interpersonal relations. This mode of thought and of life prevents the satisfaction of the human needs for love, response, and social integration and is probably the main force which drives people to embrace totalitarian ideologies from which they wrongly expect satisfaction of these needs neglected by present social thought and by our social institutions.

The answer to these problems, indicated in Pribram's most brilliant book, is that the allegedly conflicting patterns of thought may prove to be merely different approaches and methods used by the human mind, *all of them* necessary to enlighten us on our path.

WALTER A. WEISSKOPF
Roosevelt College

Socialism. By PAUL M. SWEEZY. "Economics Handbook Series." New York: McGraw-Hill Book Co., 1949. Pp. xiii+276. $3.50.

This book is the third publication of the "Economics Handbook Series" and begins with a brief Introduction by Seymour Harris, the editor. He introduces the author (correctly, in my opinion) as the leading Marxian economist in the United States. Unfortunately, however, this volume will do little to enhance Dr. Sweezy's reputation.

The exposition is both clear and simple—too simple. Difficulties, both in theory and in practice, are duly noted but are then passed over with a casualness that simply cannot be defended on the ground that "this is an elementary book and difficult matters must be minimized." Either more careful treatment should have been afforded to certain crucial issues (indicated below), or they should simply have been omitted, with a note to the effect that they were too difficult to be handled in a volume of this character.

The first chapter contains a brief discussion of terminological questions, while the following three consist of descriptions of socialism as practiced in the Soviet Union, in eastern Europe (principally Poland), and in Great Britain. Sweezy minimizes the importance of the Socialist achievements of the British Labour government and generally compares it unfavorably with the Socialist regimes of eastern Europe. The principal basis of this comparison is that, in the regimes of eastern Europe, the political power of the anti-Socialist forces has been broken, while in Britain it remains intact. This raises the all-important question of the relation between the distribution of political power and the attainment of socialism—a question which Sweezy handles very inadequately.

To be specific, Sweezy does not properly consider the status of political and civil liberties in a "planned economy" of the kind he wants. For example, he argues that the British Labour government has not engaged in effective planning (as have Russia and Poland) because (p. 44) "in the final analysis—success depends upon the voluntary cooperation of employers, trade unions and the public generally." But this implies that planning à la Sweezy would *not* depend upon such voluntary co-operation; this leads to the question of how much freedom is to be granted to associations of persons not dominated by the state—in particular, to trade-unions. To give them any real independence implies that they might use it to object to the plan as it affects them and, perhaps, to obstruct it. Hence whatever independence they are to be given must be circumscribed so as to preclude this latter possibility. In short, if organizations have "real" independence, the planning agency must depend upon their co-operation in order to succeed; it is only when they do not have such independence that the planners may ignore them. To this problem, vital for every Socialist, Sweezy does not address himself.

Nor does he consider the important question of what role informal, as well as formal, organizations (e.g., trade-unions) are to play in formulating and executing the central plan. If informal groups in certain factories should happen to oppose the plan (as it affects them) and agitate against it, will they be left free to do so, or will they be dealt with as "obstructionists," "traitors to the working class," etc.?[1] To say that worker attitudes will be different in a Socialist society is to beg the question; one product of "bourgeois democracy" is the creation of self-interested groups whose objectives are narrow and perhaps antisocial. But will these groups simply "wither away" in a Socialist environment, or will they have to be exterminated? In the latter event, many personal liberties must be sacrificed on the altar of socialism. It is because of this (*inter alia*) that many liberals fear that the connection between socialism (of the Soviet variety) and the restriction of civil liberties may be more intimate than Sweezy believes (pp. 249–52).

In the last chapter, "Are Socialism and Freedom Compatible?" the author refutes the negative arguments on this question offered by Hayek, Mises, and company. But he does not discuss the debates *within* the Socialist movement concerning the relation between the state and trade-unions; and the rights of opposition parties under the dictatorship of the proletariat, etc., are nowhere discussed. This may lead the unwary to suppose that Socialists themselves never considered these problems. Furthermore, the arguments of the anti-Leninist Socialists are not so easily answered as those which Sweezy attacks. Sweezy's failure to discuss the above debate makes the two chapters (viii and ix) on the history of the socialist movement extremely superficial; the failure to consider the counter-arguments to Lenin's doctrine of the one-party state (and related issues) makes it impossible to understand the issues at stake in the struggle between bolshevism and social democracy.

The chapters which deal with Marxian doctrine on philosophy, history, politics (chap. vi), and political economy (chap. vii) are clear and well written, but so brief as to serve only as the barest introduction to the subject. Unfortunately, there is no attempt to relate Marxian to non-Marxian views; this hiatus is likely to reduce the pedagogical value of these chapters. Chapter x ("Can Socialism Provide Incentives to Work and to Efficiency?") is very well done, while chapter xi ("Can Socialism Utilize Resources Rationally?") is a good summary of the Hayek-Mises argument on the negative side and Lange's affirmative rebuttal.

In fine, this is a disappointing book—disap-

[1] To argue that the opposition might be permitted to speak, but not actively obstruct, is really futile; the relation between worker attitude and output is too intimate to permit this distinction. The policy toward "saboteurs" in both Poland and Russia indicates that the authorities there are well aware of this fact. In fairness to the author, it should be noted that he does not offer this argument.

pointing because the author's past performances give us the right to expect more than he offers. Even were Sweezy's position stated carefully, I should seriously disagree with much of it. But a careful statement would be a challenge which non-Marxian social scientists would (or ought to) accept seriously. The present volume does not present such a challenge. It is to be hoped that in the future Sweezy will turn his undoubted ability to a more serious analysis of these issues.

M. W. REDER

Stanford University

Heritage of Conflict: Labor Relations in the Nonferrous Metals Industry Up to 1930. By VERNON H. JENSEN. Ithaca, N.Y.: Cornell University Press, 1950. Pp. 495. $4.75.

This is a monograph dealing with the history of labor conflicts in the copper, silver, and lead mining and smelting industries in the western states, notably Montana, Idaho, Nevada, Colorado, and Arizona, with one chapter reaching as far east as Michigan. It covers the time from the middle of the last century, when these industries originated, usually in the course of gold prospecting, down through the first World War, with a few minor developments followed into the 1920's.

The author has collected his material from a great mass of contemporary reports, such as local newspapers, union and industry journals, pamphlets, proceedings of union meetings, congressional and other official reports, court cases, and many monographs and articles dealing with particular aspects of his topic. (His Bibliography comprises no less than fourteen printed pages.)

The story is told in chapters dealing with temporally and geographically separated phases of the fight of the metal miners for better wages and shorter hours—notably for the eight-hour underground day—and of their fight for recognition of their union, the Western Federation of Miners (dubbed by their antagonists the "Western Federation of Murderers"), later on transformed into the, by now, prominent International Union of Mine, Mill, and Smelter Workers. It is an unhappy tale of labor relations at their worst (although, of course, not uniquely so), in which neither the essential goodness of human nature nor the American way of life seems to show up to good advantage; a tale of wretched poverty, backbreaking and ever dangerous work; of tough management for absentee-owner corporations; of much violence on both sides, with dynamiting, murder, kidnaping, and lynching; of professional spies and detectives planted everywhere in the midst of the workers and their unions; of provocateurs hired to perpetrate crimes to be fastened onto the union; of armed citizens' protective associations "deporting" troublesome strikers; of militia and federal troops throwing striking miners into "bull pens," while protecting imported strikebreakers; and so on, the only brighter spots as to labor relations being some isolated instances of paternalistic welfareism. In addition, there is, incidental to the story of labor-management conflict, much about factional interunion strife, notably with the I.W.W., which, between 1910 and 1920, invaded the region rather strongly with its more fundamental radicalism.

The author's sympathies are decidedly—one wants to say "naturally"—with the workers, although he is completely free of rancor or vindictiveness against management. The latter rather appears as acting its own inevitable role in this sordid melodrama, obliged to squeeze profits out of labor costs and hence naturally fighting the unions which are in the field to raise these costs. If, in spite of his sympathetic, detailed, and authentic account of the events, the story somehow fails to come to life—as to the social and economic life of the mining communities, the personalities of even the more prominent leaders, and the absolute and relative extent of the movements and conflicts—this is perhaps inherent in the whole plan of presenting separate instances of open conflict in various places rather than more continuous space-time strands of developments.

This book, with its minutely reconstructed scenes from our but recent labor history, seems specially valuable at this time as a reminder of what the Wagner Act has done for this country and of how the evils of its "one-sidedness," which have been so vehemently assailed and overcorrected in recent years, are as nothing compared to the truly grievous evils which that act set out to conquer: the ruthless and largely successful fight of capitalists (supported by a substantial part of organized society) against the workers' right to organize and to use their organized strength in their fight for decent living standards.

JOHN V. SPIELMANS

Marquette University

William Hazlitt and the Malthusian Controversy. By WILLIAM P. ALBRECHT. ("University of New Mexico Publications in Language and Literature," No. 4.) Albuquerque: University of New Mexico Press, 1950. Pp. 124. $1.00.

In this work the author, a student of English literature, attempts to summarize and appraise William Hazlitt's role in the "Malthusian controversy." S. C. Wilcox's Preface (in which it is said that Malthus' theory "should now be a dead issue and is so looked upon by biologists") is followed by an Introduction and eight chapters on, respectively, the controversy, 1798–1821, Hazlitt's letters on the poor laws, the ratios, Hazlitt's case against institutions, his defense of the poor laws, Malthus' views on institutions, and the role of moral restraint. A not very well-selected Bibliography and a short Index are appended. Albrecht's belief that Hazlitt's role in the controversy had had too short shrift at the hands of scholars induced him to undertake the present study, but his findings tend to justify the treatment that Hazlitt has received. The author's discussion is essentially descriptive rather than analytical.

Albrecht's conclusion that response to Malthus' views changed with time and circumstances in 1798–1821, while possibly valid, cannot be accepted in the absence of fuller information. That misrepresentation, ridicule, and personal abuse permeated Hazlitt's replies to Malthus is well substantiated. Hazlitt's criticism of Malthus' use of the two ratios comes to nothing, Albrecht implies. He might have brought out, however, that, despite their divergent views respecting the effects of specific institutions, Malthus and Hazlitt appear to have attributed similar roles to institutions in general. Even so, Hazlitt believed that removal of the poor laws would make for increased exploitation of the poor.

The last chapter is the least satisfactory in the book; it does not bring out adequately why per capita income rose when and as it did in the first half of the nineteenth century or indicate with care how this trend was affected by population growth. Hazlitt's supposed anticipations of later theories are not made explicit enough.

Albrecht's emphasis upon detail, coupled with his failure to reduce the views of Malthus and Hazlitt to a series of representative propositions, tends to obscure both the differences and the similarities to be found in the opinions of the two men.

JOSEPH J. SPENGLER
Duke University

Federal Reserve Policy-making: A Study in Government Economic Policy Formation. By G. L. BACH. New York: Alfred L. Knopf, 1950. Pp. xi+282+v. $3.00.

Professor Bach's study of Federal Reserve policy-making should not be missed by anyone interested in the current debate over monetary and fiscal matters. Engagingly and judiciously written, the little volume makes excellent reading, be it for classroom, desk, or bedside purposes.

Bach opens with a brief sketch of the history and structure of the Federal Reserve System, proceeds to stake out the scope of monetary policy (which, happily, is defined to include the general range of liquid assets), and then turns to the major topic: the problems of organization and policy-making. Separate treatment is given to internal and external aspects, i.e., to the organization of the Federal Reserve System as such and to its relation to the Treasury, the President, and the Congress.

With regard to internal organization, Bach proposes to reduce the number of board members from seven to three, to shorten their terms of office to six years, and to have the President appoint the chairman from among the board members. The salaries of board members should be raised, and requirements for regional representation should be dropped. These suggestions, which seem altogether sensible, are designed to raise the operating efficiency and prestige of the board. More important, Bach proposes to transfer the functions of the Open Market Committee to the board. Since open-market matters are the very core of central banking policy, it stands to reason that the responsible monetary authority (i.e., the board) should be in full control.

With regard to Federal Reserve–Treasury relationships, Bach concludes that the present setting leads to a lack of co-ordination and an overemphasis on "Treasury" (i.e., stable debt prices, low interest rates, easy money) relative to central-bank considerations. He urges that steps be taken to remedy this situation and, as the most feasible solution, he suggests the establishment of a "National Monetary Council." With the director of the Budget, the secretary of the Treasury, and the chairman of the Fed-

eral Reserve Board as members, the council would provide a more or less informal leadership in matters of credit and debt policy. This informal council, which is rather similar to that proposed by the Douglas Committee on Monetary, Credit, and Fiscal Policies, might be useful, but I doubt that it would help much. For the council to be effective, a formal delegation of responsibility and provision for agreement by majority vote would be needed; but this, in effect, would amount to a transfer of credit-control and debt-management functions to a new joint authority. While this may be the logical solution, it would seem too drastic a move at present; and if and when the time comes to establish such a council, the composition of its membership will require further consideration.

Bach's study is one of organization and procedure, and it may be unfair, therefore, to chide him for not having said enough about the economics of the problem. Yet to overemphasize the administrative aspects leads to neglect of what may be the real difficulties involved. Bach, I presume, is more optimistic, but I doubt whether effectively restrictive monetary policy can be restored by administrative adjustment (or whether much else could have been done during recent years, whatever the administrative setup) unless accompanied by rather basic changes in the structure of our public debt and credit controls. Such changes might have to include replacement of marketable long-term issues with debt more likely to stick with the holder, as well as some sort of secondary reserve plan. Moreover, something needs to be done to free monetary policy-making from public responsibilities toward the earnings of banks and investment institutions. Bach, no doubt, has constructive views on these matters, and most of his readers would have been happy to see an additional chapter or two devoted to them.

The study, finally, deals with several lesser problems, such as co-ordination of the present system of bank examination, preferably under Federal Reserve supervision, and transfer of certain FDIC functions to the Federal Reserve and Treasury. Obviously, not all Bach's proposals will please everyone, but they deserve a careful hearing. Based on a thorough understanding of the issues and an equally thorough disregard of agency self-interests, this study is a splendid example of what we, the profession as well as the public, stand to gain from the Washington service of "academic" economists.

A bravo also to the publisher for a fine job of printing. Let there be more economics books as readable as this one.

R. A. MUSGRAVE

University of Michigan

Bank Note Reporters and Counterfeit Detectors, 1826–1866. By WILLIAM H. DILLISTIN. ("Numismatic Notes and Monographs," No. 114.) New York: American Numismatic Society, 1949. Pp. viii+175. $3.50.

To the author's earlier pioneering inquiries into the careers of New York and New Jersey banks he has added an examination of those important tools of bankers in the pre–Civil War period—bank-note reporters and counterfeit detectors.

Mr. Dillistin is obviously something of an antiquarian, and the present book has all the advantages and disadvantages of a good specimen of this type of historiography. It is detailed; it is exact; it is reasonably complete; and it contains information which nobody had unearthed before. On the other hand, the material is not seen in a broader context; it is not analyzed; it is occasionally misunderstood; and sometimes it is presented with an incorrect emphasis.

Nevertheless, scholars interested in the history of American banking will read this study with interest. They will become acquainted with the tricks and methods of counterfeiters, who were a curse to bankers and the public alike. They will learn that the bank-note detectors published in great numbers all over the country were not fly-by-night publications. Some appeared over a period of many years. They informed the business community on raised, altered, spurious, and counterfeit notes and quoted the discount deducted for genuine notes of the various banks in the trade-center in question. Some issued occasional supplementary publications dealing with legitimate issues. The reader will also learn that there was often a personal union or close co-operation between the detector-editor and a note broker, a very natural situation, which, however, has not been known before. Finally, the reader will realize that there were attempts on the parts of banks to bribe the editors of detectors or to frighten them by legal procedures. Undoubtedly some succumbed to such pressure.

There is one aspect of the problem of counterfeiting which the author has overlooked. He

does not describe the co-operative efforts of banks to fight counterfeiting. They started by 1810 and gained particular importance in the 1850's, when such efforts were backed by public agencies, especially in Massachusetts. However, this is an aspect of pre–Civil War experience somewhat distant from the author's main theme. We should be thankful for what he has provided.

ARTHUR H. COLE

Harvard University

Social Accounts and the Business Enterprise Sector of the National Economy. By F. S. BRAY. (University of Cambridge Department of Applied Economics Monographs, No. 2.) London and New York: Cambridge University Press, 1949. Pp. viii+100. $2.50.

This monograph is an elaboration of one section of Richard Stone's system of national accounts (*Measurement of National Income and the Construction of Social Accounts* ["U.N. Studies and Reports on Statistical Methods," No. 7 (1947)]). American economists are already familiar with this system; it was applied by the Department of Commerce in its now famous *Supplement* to the *Survey of Current Business* (July, 1947). Bray extends Stone's original system to include the balance sheet, but otherwise leaves the system and its basic principles essentially unmodified.

The formulation is in terms of (British) professional accounting terminology, entries, and statements. In effect, Bray shows what information would have to be provided by each enterprise if the national accounts for the business sector were to be built up directly from the reports of individual enterprises, and how the accountant could construct records to yield this information. The information required is summarized in his Appendix III in the form of a suggested income account, table of uses and sources of funds, and balance sheet. Included are items not commonly found in the usual business accounts: for example, the inventory revaluation adjustment, the difference between depreciation at original and at replacement cost, and the par equivalent of securities owned. Most important is the extensive detail demanded. This would frequently require setting up separate ledger accounts for items now usually thrown together.

It is difficult to believe that many enterprises —even enough to provide an adequate sample, such as Stone hopes for—would be willing to take the trouble to gather and make available all this information. To the enterprise the value of much of it will appear somewht conjectural. Rough estimation will therefore always be necessary to supplement data from business records if we are to have national income and product figures, let alone the input-output tables, claims structures, and other sets of connections that we are now trying to build into our systems of national accounts.

SOLOMON FABRICANT

New York University

Essai sur les mouvements des revenus et de l'activité économique en France de 1798 à 1820. By A. CHABERT. Paris: Libraire de Médicis, 1949. Pp. 490. Fr. 1,200.

To those who have sometimes felt that studies published by French economic historians have not always compared favorably with other works in the same field, this essay by M. Chabert will doubtless cause a general upward revision in their appraisal of recent French scholarship. In an earlier volume he traced the movements of various prices; in the present volume he tries to determine the increase in the national income over the same years and to show how the income was distributed among the various social and economic classes. Throughout the study he raises the "right" questions and is not deterred from hazarding tentative answers and interpretations simply because there are important lacunae in his quantitative data.

His broad treatment lifts the essay out of the confines of strictly monographic studies and molds it into a succinct, yet comprehensive, account of French economic development over a limited period of time. To illustrate, one could mention his treatment of changes in landownership and tenure, improvements in agricultural techniques, and shifts in the intensive and extensive margins of cultivation; the rapid growth of the factory system in cotton textiles; the improved position of the manufacturing and trading classes; shifts in foreign and domestic commerce resulting from various causes; and, of course, the effects of state policies and wars on economic progress.

The main conclusions of the *Essai*, however, relate to the redistribution of the national income, which increased markedly, with nearly all

social classes sharing in the gain, albeit at different rates. The middle-class merchants and manufacturers enjoyed the greatest improvement in their status; the large landlords and more important farmers made appreciable gains; and industrial workers in rural areas and villages appear to have fared somewhat better than did urban workers generally.

Chabert offers more than sixty tables, sixteen graphs, and six maps to help guide the reader to these conclusions. His Bibliography of fifty-one pages leaves little doubt that he worked extensively with both primary and secondary sources.

Although I believe the book to be a very important contribution to our understanding of French development, I must direct attention to a serious weakness. Chabert indulges in some statistical manipulations which, to say the least, may not be understandable to American economists. On page 228 he concludes that, since the cost-of-living index rose by 16.41 per cent from 1798–1802 to 1817–20 and nominal money wages during the same period by 20.4 per cent, real wages increased by about 25 per cent! If one takes the period from 1798–1802 to 1808–12 (that is, before the blockade collapsed), the cost of living rose only 10.85 per cent and money wages by 37 per cent, according to his most extended and reliable index. Chabert concludes from these figures that the real income by 1808–12 was 145 per cent (*sic*) higher than in 1798–1802. French editors and authors are notoriously lax in reading proof, but these figures cannot be dismissed as typographical errors. They are repeated throughout the book, and Professor Lefebvre unquestioningly accepts the 25 per cent increase in real wages in his Preface (p. 10). Again, Chabert writes (p. 426): "It may be affirmed without any hesitation whatsoever that it was the capitalist manufacturers and merchants who retained the most considerable share of the social product." The data, no matter how carelessly interpreted, do not lead to this conclusion. In all fairness to the author, however, I should state that I failed to uncover any other faulty derivations from the index numbers and other quantitative data published in the work and that I do not believe the statistical foundations of the book to be so questionable as to invalidate seriously its distinctive contributions.

WARREN C. SCOVILLE

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Taxing Municipal Bond Income. By LYLE C. FITCH. Berkeley and Los Angeles: University of California Press, 1950. Pp. 161. $2.50.

This book is probably the best attempt to date to look into both sides of a bitter argument. Professor Fitch sees in the exemption of municipal bond income from federal income taxation a loophole that is particularly harmful because it enables wealthy men to avoid a share of their income tax responsibility. But he is also concerned with the damage that removal of the exemption might do to the finances of state and local governments. He concludes that the advantages to investors of tax exemption should be eliminated. At the same time, he would retain the differential borrowing advantage of state and local governments. These objectives would be accomplished through a rather complex set of tax devices, for which the author sets up "models."

The idea that an indirect subsidy to state and local governments is desirable, with or without the tax exemption, requires thorough analysis. The book reaches that conclusion in haste. In my opinion, this is a serious weakness.

Fitch fears that a higher cost of debt service would place great strain on many state and local governments. Tax rates in the largely regressive state and local tax systems are, in his opinion, already high. He does not mention the fact that assessed valuations of real estate are generally low. Nor does he consider the urgent need for a revamped state and local tax system, whether the exemption is removed or not. Even the approval of a compromise elimination of the exemption by Congress and the courts would take a long time. By this time, an aggressive state and local policy of developing new tax sources and of tax reform could be well on the way toward strengthening the lesser government units to a point where they could no longer claim a need for subsidization in any form.

Fitch, in his fear of a deliberate federal subsidy with control over state finances a possible corollary, proposes to perpetuate an indirect subsidy that would maintain the existing inequity of an advantage over other borrowers.

The author proposes a compromise solution to a vexing problem. Whether it is successful depends on the reader's viewpoint; I feel that it was reached in too limited a context and is a part-way step that would be satisfactory only as a move toward complete elimination of the effects of tax exemption. But the book is recommended as an antidote to some of the more ex-

treme contributions to an argument that has been more emotional than reasoned.

ARTHUR W. VINER

Committee for Economic Development

Taxes and Economic Incentives. By LEWIS H. KIMMEL. Washington: Brookings Institution, 1950. Pp. x+217. $2.50.

It is obviously important in a mixed economy to know "what makes business tick." The principal contribution of this book is the author's approach to this problem by questionnaire, inquiring extensively of businessmen what they themselves think about the matter. The results are presented in tabular form and are discussed.

This approach has limitations that might well have been stressed by the author. Businessmen may not be the most competent witnesses on a complicated issue of incidence: they do know when a price more than covers taxes, but they may not know the objective determinants of conditions that enable them to charge this price. When a majority of answers holds that business corporate net income taxes are shifted and that business general property taxes are not (!), the result does less to shake prevailing economic theory than to raise questions about the questionnaire. Then, too, businessmen have a hearty dislike of taxes and a dim sense of their connection with public expenditure. One need hardly have bothered to submit a question such as "Do taxes dampen the incentive to work and to save?" In one instance the author finds a comment to the effect that federal excises have caused a sharp decline in sales of taxed commodities, directly contrary to other evidence. But, in general, replies are accepted at face value, and no account is given of the method of sampling. One finds one's self easily persuaded that the ultimate product is an indiscriminate mixture of wishful thinking, special pleading, and honest criticism.

The author gets off to a good start with a discussion of taxable capacity and observes that much here depends upon conditions of income, taxes, expenditures, and public reactions. In general, diversity in the tax system and an uneven distribution of income are favorable to a high tax capacity.

This introduction is followed by an analysis of features of the corporate and personal income taxes, supported in most instances by the poll of business opinion and accompanied with recommendations. Businessmen predominantly think that the corporate tax affects prices; that the tax (nevertheless) retards expansion; that methods of financing are not influenced by the corporate tax (strong minority); that the personal tax has adversely affected stockholders' investment in new issues; that present capital gain-and-loss provisions are satisfactory; and that present pay-roll and state sales and property taxes are not generally a deterrent to business.

The author's recommendations give first emphasis to co-ordination of corporate and personal taxes; for the present, part of the corporate tax would be treated as a genuine collection at the source and the other part as a levy on corporate income as such. Other recommendations include more latitude in depreciation allowances; elimination of the carry-back and extension of the carry-over of losses; limitation of the personal taxes to a top level of 50 per cent; more generous offsets for capital losses and retention of federal excises. No effort is made to bolster the revenue by any search for loopholes.

I accept some of these recommendations (particularly the first three above) as sound approaches to a tax system in accord with the public interest. And I regard the book in general as a considerable contribution in revealing what would happen if business were given a free hand in writing the tax system.

HAROLD M. GROVES

University of Wisconsin

The Evolution of Our Latin-American Policy: A Documentary Record. By JAMES W. GANTENBEIN. New York: Columbia University Press, 1950. Pp. xxvii+979. $12.50.

As indicated by the subtitle, this volume is a collection of speeches, letters, and other documents sketching our Latin-American policy. The author has stated his purpose to be that of endeavoring to trace through official documents the principal lines of our foreign policy regarding Latin America and of avoiding any attempt to prove a theory or principle or of presenting either propaganda or criticism with respect to any period. Although he makes no claim to complete coverage of our diplomatic relations with Latin America, he presents an extensive collection of materials bearing upon the subject.

The author has allocated about a third of the work (Part I) to general principles. There follow other sections dealing with the Monroe Doctrine; the independence of Cuba; the Panama Canal concession; certain controversies with Mexico; our intervention in Nicaragua, Haiti, and the Dominican Republic; and a number of appendixes containing agreements, resolutions, and conventions of various inter-American conferences and certain treaties and agreements between individual nations. The documents quoted take the reader from Washington's Farewell Address through Point 4 in President Truman's program. Curiously, with regard to the latter, the section of the President's Inaugural Address in 1949 containing the broad outline of the Point 4 program is not included, though later correspondence relating to it is given.

While there are doubtless no two students who would make the identical selection of materials for a documentary record of this type, it seems to me that some of the speeches and official correspondence printed in their entirety could have been deleted or reduced to excerpts without loss of value. By skilful arrangement, the editor compensates to some extent for the absence of any textual comment binding the elements together.

The chief value of this work is that it makes readily accessible to students widely scattered documents relating to the development of our political and economic policies toward Latin America. The book should prove most useful as a reference work for the historian and for our State Department and foreign-service personnel. For economists interested primarily in international trade and in Latin-American economics it should prove a convenient source book.

WALTER H. DELAPLANE

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Han Shu 24: Food and Money in Ancient China. Translated and annotated by NANCY LEE SWANN. Princeton: Princeton University Press, 1950. Pp. xiii+482 and Chinese text. $10.00.

There are four ancient histories of China. The second oldest is the *Han Shu*, the "Book of Han," which is divided into the Former Han and Later Han dynastic histories. Chapter 24 of the *Former Han Shu*, dealing with food and money, comprises the bulk of the book reviewed here.

The *Former Han Shu* was started by Pan Ku in the latter part of the first century of the Christian Era and was completed in the first half of the next century by his son and daughter. It is actually a mammoth project of a literary family. The book was patterned after the "Historical Records," the *Shih Chih*, which antedated it by seventy-five years and continued a traditional form of Chinese historiography which was to remain popular for centuries afterward.

The value of the "Book of Han" lies in the fact that it was written shortly after the period which it describes (the Former Han Dynasty covers the period from 206 B.C. to A.D. 19). The historian had access to materials which have since been lost and, what is more, was in a position to reproduce faithfully the spirit of the era. The shortcomings are, from an economist's point of view, the lack of systematic specific information on prices and on forms of economic activity.

Nevertheless, *Han Shu 24* makes interesting reading. The author (s) recorded the then prevalent belief that agriculture is the basis of all endeavor and that trade is a somewhat superfluous, and often wicked, enterprise. Another idea preserved for posterity is that the forces of the market have to be contained. During the Han period a number of emperors instituted complicated price-equalization programs for agricultural commodities, and one of the early Han rulers unequivocally recognized that the demand for agricultural commodities was highly inelastic. The Hans administered their own price-support programs, all of which, incidentally, came to nought.

A great part of the treatise is devoted to coinage and taxation. Changes in the coinage are described in detail, but little is said, except in a general way, about the behavior of prices. The relationship between gold, silver, iron, and copper—used sometimes alternatively and sometimes simultaneously as coins—is not specified. The parts dealing with taxes are very general, and at no time is the whole tax system described. The description of taxes, however, is more informative: the periodic capital taxes of the late Han Dynasty show that, on the whole, the tax system was well developed.

In addition to *Han Shu 24*, Miss Swann has translated portions of *Han Shu 91*, where biographies of a number of people who achieved

their fame through riches are included. This section is complemented by parallel passages from the "Historical Records."

Han Shu 24 by itself does not give a picture of the economic history of the times. The copious annotation by the author does not contribute much to that purpose, nor is it designed to do so. The task of translating the treatise is a herculean one, since the language of the *Han Shu* is often unclear and at all times tersely classical. Swann has translated it ably and meticulously. Her footnotes justify the use of one expression in preference to another and draw the attention of the reader to similar passages in this or other texts.

The orientation of this probably definitive translation of *Han Shu 24* is toward the Chinese language scholar and, in a lesser way, toward the historian. The additional commentaries, of which there are a number in the book, are slanted the same way. No evaluation of the economic phenomena is attempted. The value of this book to an economist studying Chinese history is mostly that of a text for the study of the language. In this case, my copy suffers from a serious defect: the last ten pages of the second section of the Chinese text appear twice, while the corresponding ten pages of the first section are missing.

JOSEPH FROOMKIN

Lake Success, New York

The Idea of Progress: A Collection of Readings. Selected by FREDERICK J. TEGGART and revised, with Introduction, by GEORGE H. HILDEBRAND. Berkeley: University of California Press, 1949. Pp. xi+457. $6.00.

Most of the writings that treat significantly of the concept of progress postdate 1914, the year that marks the close of the period during which this concept swayed the mind of Western man. Since then, and more particularly since the 1920's, men have been less convinced than formerly of the inexorability of "progress." Yet no one who has studied the development of Western social thought with care can help being impressed by the impact of the concept of progress upon man's thinking and conduct.

The late and distinguished historiographer, Frederick J. Teggart, having been impressed by the role of the concept of progress, gathered into a syllabus significant excerpts from many writers, ancient and modern, who had treated of progress. These selections, along with a number of others, have now been made available by Hildebrand, together with a thirty-page Introduction. While the work is not indexed, one can rather quickly discover such elements of the theory of progress as are present in the various excerpts. A too short Bibliography on the idea of progress is appended.

The selections fall into four categories: (*a*) those representing classical antiquity, 735 B.C.–A.D. 422; (*b*) those representing the early modern period 1512–1690; (*c*) those relating to the eighteenth century, 1697–1803; and (*d*) those indicative of the search for a law of progress in the middle portion, 1830–71, of the nineteenth century. Included in category *a* are selections from Hesiod, Aeschylus, Thucydides, Plato, Aristotle, Aratus, Polybius, Lucretius, Cicero, Ovid, Seneca, Florus, and Augustine. Period *b* is represented by Machiavelli, Bodin, Francis Bacon, Descartes, Pascal, Hobbes, Fontenelle, Perrault, and Locke; and period *c* by Leibniz, Mandeville, Lafitau, Montesquieu, Hume, Turgot, Helvetius, Ferguson, Adam Smith, William Robertson, Volney, Kant, Herder, and Condorcet. Excerpts from Comte, Hegel, Marx and Engels, Mill, Spencer, and Darwin represent the last period.

Hildebrand's Introduction skilfully epitomizes the rise of the idea of progress, showing it to be made up of three elements: the belief that the course of history is continuous; the supposition that a regularly operating law governs this course; and, most important of all, the assumption that this course runs in a desirable direction. In antiquity men took relatively little stock in the belief in secular progress, the grounds for this belief not having been laid until in the early modern period and not having been effectively developed until the eighteenth and nineteenth centuries. It is to be regretted that lack of space prevented Hildebrand from inquiring into a number of unsettled questions. What was the contribution of medieval philosophy to the idea of orderliness underlying the theory of progress? Was not the rise of the idea of progress rather closely connected with the development of the town economy and the associated increase in the significance of the common man? What do the Italian writings of the later medieval city-state period reveal concerning belief in progress?

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